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ORIGINAL LECTURES.

BLOODLETTING.¹

A Clinical Lecture.

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GENTLEMEN: From a medical point of view there is no history more interesting alike to philosopher and physician than that of bloodletting. It is a history replete with useful lessons. We see there illustrated the truth that when the spirit of system and of routine takes possession of a philosophical or medical doctrine, the results are distorted and misinterpreted, and the practical outcome is barren of good fruits and baneful. If, moreover, the word of the master is worthy of respect, hot-headed enthusiasts who urge to riot and madness every good measure are always to be distrusted; finally, enlightened observation and the true scientific spirit ought continually to submit to the test of the experimental sciences the data furnished by tradition.

We are ignorant of the origin of bloodletting; we only know that it was in use at the dawn of our historical era. Eleven hundred years before Christ, Podalirius is said to have practised it at the siege of Troy. It is probable that it was already in vogue among nations where civilization was more advanced, and that in Egypt, India, and China bleeding was a recognized therapeutic measure.

However this may be, Hippocrates, in his writings, speaks of bloodletting and its indications. Afterwards Aræteus and especially Galen insist on the importance of bleeding, and thenceforth down to the seventeenth century venesection was practised in accordance with the principles which Hippocrates and Galen had laid down. It was as much as ever, if during this long space of time certain opponents, Van Helmont and Porcius in particular, dared lift their voices in protestation against the abuse and the uselessness of bloodletting.²

¹ Translated from advance sheets by E. P. Hurd, M.D., of Newburyport, Mass.

² The following passage from one of the writings of Hippocrates makes particular mention of bloodletting: "A patient had borborygmi and pain; had taken emetics without relief; was bled by turns from each arm to syncope, and got well."

From the time of Hippocrates, bloodletting has given rise to very many discussions; nevertheless, owing to the influence of Galen and Celsus, who were for ages the teachers in medicine, bleeding was adopted as a treatment applicable to a great number of complaints. Galen made the following reservation: not to bleed children under four years of age, and rarely to bleed old people.

It was in the seventeenth century that the contest between the adversaries and the partisans of venesection took on the most vehemence, and a perfect furor for letting of blood seized certain physicians. Guy Paton was the most ardent of these enthusiasts. He bled his *confrères* Mentel thirty-two times consecutively, and bled himself seven times for a cold. He would bleed infants at the breast, and even aged people.

Chirac went further, if possible, than Guy Paton, and to him is ascribed that celebrated utterance, "Smallpox, I will make you use to the lancet."

Pitcairn boasted of having drawn twenty English pounds of blood from a patient affected with acute articular rheumatism.

Tweedie, in a case of pericarditis, took first 421 grammes, then

They were, however, little heeded, and the majority ranged themselves on the side of Botalli, who compared diseased blood to stagnant water in a well, which becomes more and more pure the more you take out. It is precisely so, said Botalli, with the blood and with bloodletting.¹

It was, however, in the seventeenth century that phlebotomy attained its zenith, becoming in France, as in England, the unique system of treatment of all diseases—children and old men alike were bled; the newborn babe was not even spared, and blood was taken by *quarts*. Guy Patin bled his *confrère* and friend Mentel thirty-six times in succession, and caused himself to be bled seven times for a simple cold. Pitcairn drew more than five kilogrammes from a rheumatic patient, and Gregory, for a pleurisy, gave issue to more than six kilogrammes. Medicine at this epoch was reduced to these three great elements: purgings, bleedings, and clysters; and the response of the bachelor in the immortal comedy of the *Malade Imaginaire* is in exact conformity to the prevalent practice of the epoch, when he replies to all the questions propounded to him by these three lines—

Clysterium donare,
Postea seignare,
Ensuite purgare.

When one thinks of the prodigious number of purges ordered, the enormous quantity of lavements administered, and the sanguinary floods which phlebotomy produced in this and the succeeding epoch, one can but exclaim with Bouley, physician to the Hôpital Necker, in view of such heroic medication: "A sick person has more vital resistance than one would think!"

720 grammes, then 960, then 1200, and finally 1440, before the patient was relieved.

Gregory caused a pleuritic patient to lose 5520 grammes in the course of several days.

There was a revival of excessive bleeding under the influence of Broussais at the beginning of this century, and Bouillaud, with his bleedings, "blow after blow" (*coup sur coup*), was the last representative of this period, which Schneider has characterized as the period of *hematomania*.

The ancients practised phlebotomy with various instruments; generally, a spear-pointed fleam, called *fossorium*, was thrust into the vein. This instrument is still used by veterinary surgeons when they bleed horses. One of these *fossoria* was found in the ruins of Pompeii.

They also used an instrument called *scalpellus*, with which they opened the vein. Galen employed a cutting implement which he described under the name of *phlebotomon*. Albucasis made use of all three kinds, the *scalpellus*, the *fleam*, and the *phlebotomon*.

The words *lance* and *lancet* were not introduced into surgery till about the year 1200 (Journal, Considerations Relative to General Bloodletting, 1867; Brichetan, Bloodletting, Its Physiological Effects and Therapeutic Indications, Bull. de Théor., lxxv. p. 261, 1868; Article, Saignée, in Dict. Encyclop. des Sciences Méd.; Sanceritte, Bull. de Théor., li. p. 145).

¹ Botalli was a physician of the University of Paris; afterwards (from 1571), physician to Charles IX. His controversy with the faculty, and in particular with Donatus, has become famous. The latter reproached him with the hardness of his bloodlettings. He was one of the greatest partisans of phlebotomy. He bled all his patients to excess, basing himself on the principle which he enunciated to his friend Étienne Pasquier: "The more you withdraw of stagnant water from a well, the more of pure water flows in to take its place. The more the wet-nurse is sucked by the infant, the more milk she has; the like holds good with blood and bloodletting." (Étienne Pasquier, Lettres liv. xiv., lettre 19.)

This mania for bloodletting, after having abated for a number of years, burst forth with new ardor at the commencement of the nineteenth century, and Bosquillon with his humoral ideas, Broussais with his physiological doctrine, Bouillaud with his system of bleedings, *blow upon blow* (coup sur coup), gave a new *eclat* to the practice of phlebotomy. Then the zeal by degrees died away again, and it may be truly said that to-day the prescription of a phlebotomy is an exceptional thing in the practice of our hospitals, and it is as much as ever if I order one or two bleedings a year. Peter has indeed made some attempts the last few years to show the evil consequences of so complete an abandonment of this therapeutic measure. We will now see by the most recent data of experimentation if the favor which bloodletting once found and its present abandonment are susceptible of justification.

We ought here to divide our subject into two parts, and study in particular the action of general bloodletting, and that of local bloodletting. We ought also under each of these heads to examine successively the operative procedure, the physiological effects, and lastly the indications and contra-indications of general and local bloodletting.

General bloodletting (called also venesection, phlebotomy) is practised, as you know, at the bend of the elbow; and although in my audience there are doubtless many who have never bled a person, or seen one bled, I need not now take up your time in describing the operation, which you will find in full detail in any text-book on minor surgery. This ignorance of the manual procedure is quite pardonable in anybody, considering how very seldom bleeding is practised in even our large hospitals.¹

What are the physiological effects of bloodletting? Here we have to study the effects of bleeding on the circulation of the blood, and on the blood itself, and the modifications which supervene in the functions of the different organs of the economy.

The blood is profoundly altered by bloodletting, and we must examine successively the modifications of the globules, and of the serum. In treating the globules, we are to consider the changes in the red corpuscles, the leucocytes, and the hæmatoblasts.

Hayem has shown us in his admirable work on the modifications of the blood, from which I derive the principal data of this lecture, that every loss of blood, however trifling, and though not exceeding 1.75 per cent. of the weight of the body, produces a diminution in the number and quality of the globules which persists from ten to twenty days. When the hemorrhage is large, or when the bleeding is often repeated (*coup sur coup*), the diminution of the globules continues and even augments during the eight days which follow the operation. But that which it is important to note, is that in proportion as the globules are destroyed, others are produced with extreme rapidity. The number of the hæmatoblasts also augments after each bleeding, and in a marked manner; this it is which has led Hayem to say that every hemorrhage inevitably causes a *hæmatoblastic crisis*. This reproduction is even so rapid in certain animals, as the dog, that it is difficult to produce in them a persistent anæmic state

by bleedings of moderate intensity, even if frequently repeated.

As for the leucocytes, Weber and Bauer maintain that they augment with losses of blood; Hayem affirms, on the other hand, that it is not so, and that their number remains the same after as before the emission of blood.

The modifications effected in the blood-plasma are less known than those of the globules. Thus, while Prévost, Dumas, and Jürgensen allege that there is augmentation of albumen, Becquerel and Rodier maintain that there is diminution. There is the same dispute with regard to the fibrin; White, Andral, Gavarret, Schutzenberger, Nasse, Sigmund, Mayer, Jürgensen, assert that fibrin is increased; Magendie, Coze, Hirtz, Brücke, affirm a decrease; Hayem is of the opinion of the first-mentioned experimenters, and according to his numerous researches there is a positive increase of fibrin after each bloodletting.

As for the plasma, note that Arsonval has always found peptones in the serum after copious bleedings; this is a fact of great importance, and shows the modifications effected in nutrition by phlebotomy, the peptones being the result of a veritable *autodigestion* provoked by each bleeding.¹

This same modification in the nutrition is still further indicated by the diminution in the quantity of gases dissolved in the blood. Lothar, Meyer, Mathieu, Urbain, Vinay, and Noël, have in fact observed a decrease in the quantity of carbonic acid, and especially in that of oxygen.²

Bleeding has also an influence on the circulation. It at once modifies the pulse, and here, too, Hayem has shown us these modifications in the frequency, force, and form of the pulse. We must here distinguish the effect of one bleeding from that of several, and this distinction should always be made when the physiological effects of blood emissions are to be studied. When there has been but one bleeding, the pulse, half an hour afterward, becomes slowed; when on the contrary there have been repeated bleedings, the pulse augments in frequency in a sensible manner; in augmenting in frequency it diminishes in force, and its form takes on that which is observed in cases of anæmia or aortic insufficiency. The ancients attached great importance to this action of bloodletting on the pulse; they maintained that bleeding *raised the pulse*. One can readily understand, to-day, that this increased amplitude of the pulse results not from the greater energy of the circulation, but from the diminution of the vascular tension in consequence of the loss of blood.³

¹ D. Arsonval, On the Constitution of Blood after Hemorrhages (Gazette Méd., 27 March, 1880, p. 164).

² L. Meyer, Die Gase des Blutes (Zeitschr. f. pract. Med., Bd. viii. s. 256, 1857).

Vinay, On Bloodletting in Acute Diseases (Thèse de Paris, 1880, etc.).

³ Hayem has remarked, after one bleeding, increase of pulsations during the operation, but this increase ceases half an hour afterward. When the hemorrhage is mortal, the pulsations increase at first, then diminish, and become irregular at the moment of death.

In the case of repeated venesections, the augmentation of pulsations becomes more and more marked with each bleeding, as is seen by the following table.

Before first bleeding,	122 pulsations per minute.
During " "	164 " "
One-half hour after first bleeding,	149 " "
Immediately " " "	180 " "
Before second bleeding, 24 hours later,	148 pulsations per minute.
During " " "	204 " "
Immediately after second bleeding, 24 hours later,	189 " "
One-half hour after second bleeding, 24 hours later,	209 " "

¹ Phillipart, of Tournay, has protested against the abandonment of bloodletting. He insists that the profession, in forsaking venesection, have gone too far, and that it is useful to return to this ancient mode of treatment in acute diseases. *Apropos* of the neglect of bloodletting, he cites some curious facts—namely, that the physicians of hospitals attached to the Central Bureau in the year 1867 prescribed bleeding but twice out of 8000 consultations, while in 1852 it was prescribed 1259 times. (Phillipart, on Bloodletting in the Treatment of Acute Diseases, Bull. de l'Acad. de Méd. de Belgique, 1883, t. xvii. p. 128.)

These modifications of the pulse are subordinate to the disturbance occasioned in the blood-pressure. For it is now admitted by all experimenters—Volkman, Navrotsky, Gatzirck, Vorm-Müller, Vinay, Hayem—that hemorrhages diminish the blood-pressure; but in order that this diminution may be effected and maintained, considerable losses of blood are required, for as Vinay and Arloing have shown, these circulatory depressions disappear with great rapidity. This diminution in pressure is accompanied with a swifter blood-current, but on condition always that the hemorrhage has not been too considerable.¹

These circulatory modifications give rise to troubles more or less profound in the functioning of the different organs. The respiratory movements, at first slowed, become more frequent, and more tumultuous in proportion as the hemorrhage becomes more considerable. Nevertheless, when the blood loss is moderate in amount, the dyspnoea is diminished, and this it is that explains the relief experienced by most patients affected by pulmonary diseases after bleeding. These respiratory troubles are connected with the perturbations caused in the functions of the nervous system by bloodletting.²

This rôle of the nervous system renders more complex than one would suppose the question of the physiological effects of bloodletting. Since we have learned the existence of the vaso-motors we are obliged to assign to the nervous influence modified by the hemorrhage, a part quite as important as we ascribe to the direct effect of the loss of blood on the mechanical and physical conditions of the circulation.

Before third bleeding, 3 hours later, .	188 pulsations per minute.
During " " " " " "	240 " "
Immediately after third bleeding, 3	
hours later,	220 " "
One-half hour after third bleeding, 3	
hours later,	220 " "

As for the force, Vinay from his experiments concludes that the force of the pulse diminishes with acceleration of the pulse, and this is the rule in bleedings of moderate intensity. In fine, as to the form, after abundant hemorrhages the character of the pulse is like that observed in aortic constriction and insufficiency. (Hayem, *Modifications du Surg.*, p. 177. Vinay, *Des Emissions Sanguinées dans les Maladies Aiguës*, Thèse de Concours, 1880, p. 25.)

¹ According to Volkman's table, the normal vascular pressure being 155, a bleeding of 2 per cent. of the weight of the body reduces the blood-pressure to 56, and one of 3 per cent to 30. Vinay and Arloing have established the following laws:

1. That venesection produces immediately a considerable lowering of blood-pressure in the arteries.
2. That equilibrium is reestablished with great rapidity.
3. That copious bleedings effect great oscillations of pressure.

According to Hayem, the lowering of pressure is not progressive. Scarcely appreciable in the first fifth of a mortal hemorrhage, it is between the first and second fifth that the diminution takes place the most rapidly. It is inappreciable in the last stages of the hemorrhage.

According to Vinay, small or medium sized hemorrhages are accompanied with a more marked irrigation of the tissues, but when the loss becomes more considerable the course of the blood changes, and is slowed. (Volkman, *Hemodynamik*, 1850; Vinay, *op. cit.*, p. 21; Hayem, *op. cit.*, p. 162; Gatzirck, *Centralbl. f. d. Med. Wissensch.*, No. 53, p. 883, 1871.)

² Lichtenstein has remarked a diminution in the number and profundity of the respirations following medium hemorrhages. Bauer has arrived at the same results, but when the hemorrhage is more considerable, this diminution gives place to augmentation. In the experiments of Hayem the respiratory movements augment and become more and more irregular in proportion as the hemorrhage continues.

These modifications result from the anæmia of the spinal cord produced by the loss of blood. (Lichtenstein, *Zeitschrift f. Biologie*, Bd. vii. 2 Hft. Bauer, *Geschicht des Aderlassens*, München, 1870; Hayem, *op. cit.*)

We ought also to attribute to this double influence the action of bleeding on the temperature.¹

Bleeding lowers the animal heat, and this in the normal as well as in the pathological state. It even seems to me that we have not of late years insisted enough on the therapeutic value of this powerful antithermic means. I know of none more active or more efficacious, and in contemplating what sometimes takes place in certain pyrexias, as typhoid fever, one is tempted to ask if it would not be well to return to the practice of bloodletting, after the manner of our fathers. This is what happens with our typhoid patients; when in the course of this disease a moderate hemorrhage appears, you see immediately the thermometric curve fall, and this lowering of temperature long persists. I know that this benefit is obtained at the expense of a convalescence often long and painful, but the fact none the less remains that, placing ourselves exclusively on the stand-point of hyperpyrexia, bleeding is a powerful depressant of this high temperature, and I am astonished to see an attentive observer like Lorain consider this fever-fall as transient and illusory.

Bleeding acts not only on the circulation, on the respiration, on the nervous system, on the temperature; it modifies the organism in its entirety, and the conditions of nutrition even.

Every abstraction of blood, as Lepine, Bauer, Claude Bernard, and especially Hayem, have shown, energizes the nutritive movement; but this activity produces, if the bleedings are prolonged, a fatty transformation of the different organs, and particularly the heart, and this is a point which must not be lost sight of.²

If, then, I were to sum up the physiological effects of bloodletting, and with special reference to its pathological applications, I would say: Sanguineous losses of medium intensity diminish the number of globules and raise the pulse, while they enfeeble the blood-tension; they also lower the temperature; their effects, however, are generally temporary, for the reason that they provoke a hæmatoblastic crisis, which tends to bring back the blood to the state in which it was before the hemorrhage, and if the latter be often repeated, the hæmatopoietic formations exhaust the organism, and speedily produce grave disorganizations in the different viscera.

Local bloodletting has general effects analogous to general bloodletting, but it has local effects quite different. The mode of performance of these local abstractions of blood is very variable; sometimes we open the vein directly, sometimes we have recourse to mechanical means, as wet cups, or we employ leeches.

¹ In animals a lowering of temperature is observed after hemorrhage. The experiments of Marshall Hall, of Boerensprung, of Gatzirck, and of Hayem, were absolutely demonstrative of this; in man the pathological temperature falls also. At the same time Thomas and Lorain have considered this fall as transient and illusory. (Gatzirck, *Centralbl.*, 1871, p. 53; Boerensprung, *Müller's Archiv*, 1851, p. 126; Hayem, *op. cit.*)

² Experimentally, under the influence of bloodlettings, instead of obtaining a slowing of the nutritive exchanges, there is an acceleration; the experimental researches of Lepine prove this. According to Claude Bernard, bleeding has a constant effect to accelerate and provoke the organic exchanges. Bauer has studied experimentally on animals the action of bloodletting on nutrition, and he proves by the examination of the urine, as well as by that of the gases of respiration, that there is exaggeration of the phenomena of denutrition and accumulation of fatty matters. He insists especially on the augmentation of urea, which is produced immediately after the bleeding, and which persists for several days. According to him, bleeding causes not simply a loss of fluid pabulum, but a real alteration of the organs and tissues. There is also a perturbation of nutrition under the influence of repeated bleedings, characterized especially by fatty transformation of the organs, and in particular of the heart, as Perl has shown. (Lepine, *Soc. de Biologie*, 1880; Perl, *Virchow's Archiv*, 1873, pp. 39-51; Bauer, *Zeitschrift f. Biologie*, viii. Bd., 4 Hft, Munich, 1872.)

Local bleeding, properly so called, that is, the opening of certain veins by the lancet, has fallen into greater desuetude than venesection at the bend of the elbow. Nevertheless, latterly, Arango, Chaparr, Mestivier, and especially Aran, have endeavored to revive the old practice, vaunted by Hippocrates, Galen, and Alexander, of Tralles, of bleeding from the ranine veins of the tongue, while Seutin, Cruveilhier, and Denucé have proposed to take blood from the nasal mucous membrane, thus going back to another ancient practice. At the present day, despite these tentatives, local venesections are abandoned, and we have recourse only to leeches and wet cups.¹

Cupping is to-day very much in use, in spite of our repugnance to let blood, and you see it employed in a considerable number of affections, and in particular in ocular therapeutics.

Here, as in the case of venesection, I refer you to your manuals of minor surgery for the details of the operation, reminding you only that under the name of *pneumodern*, Montain, of Lyons, and, under the name of *terabdele*, Damoiseau, have devised cupping apparatus similar to those which Heurteloup and, more recently, de Wecker devised and use in inflammatory affections of the eye, and which are veritable artificial leeches.

As for leeches, they render us daily great service, although we have much restricted their usage. The application of these leeches, the hemorrhages which result, the means of augmenting the flow of blood, or of arresting it—these are points with which you are all familiar, and which you learned at the commencement of your medical studies.

I will now show you what are the physiological and therapeutical effects of local bloodletting—effects which, in some respects, surpass those of general bleeding.

Local bloodletting, whether by scarifications, by cupping, or by leeches, has a double action—a general effect and a local effect. When it results in an abundant loss of blood, it produces the same modifications as general bloodletting; the pulse rises, the blood-pressure falls, and the temperature is lowered. The most marked effect, however, and the one most often sought, is the local action, and this is determined in part by the hemorrhage, and in part by a revulsive influence provoked by the local pain.

As for the hemorrhage, the anæmiating action takes place not solely at the point where you apply the leeches or the cups, but it extends more or less far. Despite the affirmations to the contrary of Binz and Struthers, I persist in thinking with Johnson that a considerable area may be exsanguinated by the local bleeding, and this owing to the vascular communications which unite certain organs to certain points of the skin; owing also to the intimate connections of the cutaneous nervous filaments, which hold under their dependence the vaso-motor innervation of organs situated more deeply.

The rôle of the local pain determined by the punctures is as important as that of the hemorrhage. We have here, first of all, a substitutive effect, then a vaso-motor action. We know, in fact, and on this point I insisted when considering the revulsive method in its application to the treatment of diseases of the

spinal cord, that revulsion produced in any point of the skin causes anæmia of organs more or less deeply situated. Hence it is that local bloodletting has remained one of our most powerful therapeutic agents to combat the element congestion and the element pain, and especially the association of these two elements.

I come now to the most delicate and difficult part of my subject—namely, the indications for bloodletting, general and local. We will begin with the first.

If you reconsider the physiological effects of bloodletting, you observe that these effects are very transient, and cannot be persistent, except on condition either that your bleeding be exceedingly abundant, or frequently repeated, *coup sur coup*, after Bouillaud's fashion and that of the ancient phlebotomists. While, therefore, these repeated venesections undoubtedly do produce durable results, it is necessary to keep in mind that, despite the hæmatoblastic crises which they determine, they are followed by a persistent anæmia, and, what is especially worthy of being remembered, by a tendency to fatty degeneration of different viscera; and one may well ask if the inconveniences and the dangers which result from this double pathological state do not far more than counterbalance the feeble benefits which are obtained from these abstractions of blood, so that to-day, all these facts being well weighed, every body is agreed to solicit from phlebotomy only the transient effects which it can produce, and to resort to it only for relief of active and passive congestions of different organs.

There is especially one pathological condition where this depletion—temporary as it may be—of the circulatory system, by bleeding, may render us some service. It is when we have to do with those pulmonary congestions which are accompanied with asystolism, and especially those which are not linked to fatty degeneration of the heart. You understand how, in these asphyxiating periods of cardiac affections, a temporary depletion is sufficient to enable the heart to recover its habitual rhythm.

In the phlegmasiæ, properly so called, after the congestive period has gone by, and the exudation has formed, bloodletting can have little or no influence, as I explained to you when on the treatment of inflammation of the lungs.

Impotent to arrest the march of an inflammation, bleeding may nevertheless act the part of a prophylactic in these phlegmasiæ, and if experimentation in animals does not sufficiently explain these facts, clinical experience, and especially clinical surgery, shows us again and again the happy influence of general bloodletting in averting the inflammatory accidents which traumatism determine. Hence it is that bloodletting, seldom employed in clinical medicine, is still utilized in clinical surgery.

In the treatment of the essential fevers, bleeding can have only antipyretic effect, and I shall have more to say of this when I come to fevers. This antithermic action is purchased at the cost of a profound trouble inflicted on the economy, nor, for all that, is the course of the febrile phenomena affected thereby. The doctrine of microbes which, in our day, plays so important part in the pathogeny of the infectious diseases, explains for us sufficiently the impotence of bloodletting in these pyrexia, since the removal of blood can in no way prevent the development of these micro-organisms in the mass of the circulating fluid.

Bleeding is indicated much more in the inflammatory fevers, or, at least, in those which accompany local inflammation—fevers which present often a great elevation of temperature, as pneumonia. When we refer to the physiological effects of bloodletting, it is easy to understand the ancient popularity and univer-

¹ Mestivier, On Bleeding from the Ranine Veins in Diseases of the Pharynx (Bull. de Thérap., t. 52, p. 12, 1857); Arango, Treatment of Quinsy by Bleeding from the Ranines (La Union, Jan. 1883); Chaparr (Gaz. hebdom. de Méd., April, 1855); Aran, Bleeding from the Ranine Veins in Diseases of the Larynx and Pharynx (Bull. de Thérap., t. 52, p. 105); Denucé, Bleeding Practised from the Nasal Mucous Membrane (Journ. de Médecine de Bordeaux, August, 1856).

salinity of this therapeutic measure, since, directed to an affection which, by its normal evolution, tends toward recovery, it relieves the oppression of the patient, lowers the temperature, and gives a marked elevation to the pulse. But our predecessors were ignorant of the price which they paid for this passing amelioration.

Nevertheless, in certain cases of blood-poisoning, obscure in their nature, bleeding has a happy influence. Thus in the eclampsia of puerperal women general bloodletting, practised heroically, has arrested the convulsions, and all authorities seem unanimous in recommending venesection in these cases, although we are unable to explain the curative action of this spoliative treatment. You see then, gentlemen, that general bloodletting is indicated only in eclampsia and in certain congestive states, especially such as arise from temporary perturbations of the cardio-pulmonary circulation, and that even here the relief obtained from the depletion is only momentary.

Local bloodletting, by its double action in producing revulsion and opposing congestion, has applications to therapeutics which are much more numerous, and it is a very common practice to resort to this method in painful congestive affections. Thus in the pain which accompanies pneumonia and pleurisy, cups and leeches may give relief; in congestions of the spinal cord, of the kidneys, of the liver, and of the uterus local depletions often prove useful. As in local bloodletting the revulsive effects are more powerfully remedial than those resulting from the loss of blood, you understand the superiority of wet cups over leeches, and they are therefore more in use.

Such are the considerations which I wished to present relative to bloodletting, and which show the mediocre but useful rôle which this therapeutic means is destined in the future to fulfil. They will, moreover, help to convince you that, notwithstanding the opposition which we have been called to witness against bleeding in all its forms, and the decadence into which it has fallen, it ought not to be completely abandoned.

ORIGINAL ARTICLES.

THE INTRA-PERITONEAL METHOD OF TREATING THE PEDICLE IN OVARIOTOMY,

WITH A REPORT OF SOME EXPERIMENTS MADE BY

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[Read before the American Surgical Association.]

I WISH to call the attention of the Fellows of the Association to some experiments which I have made, in connection with Dr. Morris Longstreth, on the intra-peritoneal method of treating the pedicle by the ligature after ovariectomy, and to make a few remarks upon the various methods of treating the pedicle.

As is well known, the first operation for the removal of ovarian cyst was performed by Dr. Ephraim McDowell, of Kentucky, in 1809. In this operation the pedicle was secured by a ligature, one or both ends of which were drawn through the incision in the abdominal wall and placed outside. In this way the pedicle was drawn up and placed in contact with the abdominal incision.

In 1821, Nathan Smith, of New Haven, Conn., according to the statement of Peaslee and others, ignorant that the operation of ovariectomy had been performed, ligated the pedicle in this way, *i. e.*, he ligated all the vessels of the pedicle separately, using for that purpose animal ligatures in the form of strips of kid-glove. He ligated the vessels, cut the ends of the ligatures close to the knots, and returned the pedicle to the abdominal cavity. This is the first instance of ligation of the vessels of the pedicle, and also the first instance in which the ligature was cut close to the knot and the pedicle returned to the abdominal cavity with the ligatures in position.

Torsion was afterwards performed—torsion of the vessels separately, torsion of the pedicle *en masse*.

Later, in 1860, Mr. Simpson, of Edinburgh, suggested the use of the acupressure needle for the purpose of constricting the pedicle. In 1858, John L. Atlee, of Lancaster, Pa., used the *écraseur* in that way, dividing the pedicle and crushing the vessels. Baker Brown, of London, in 1864, used the actual cautery—divided the pedicle with the actual cautery, and thus seared the stump of the pedicle. Spiegelberg, of Breslau, used the galvanocautery in 1868. McCloud, of Glasgow, twisted off the pedicle by means of two pairs of strong forceps, and in that way controlled the hemorrhage. In 1869, Dr. Miner, of Buffalo, N. Y., enucleated the pedicle. In 1869, Peaslee, of New York, introduced a method which consisted in the introduction of a tube into the abdominal cavity, around which the pedicle was secured by double ligature. At the expiration of two or three days these ligatures were divided by a peculiarly shaped knife passed into the tube, and the ligatures, with the tube, were then withdrawn from the cavity.

These are in brief the different plans which have been adopted since 1809 in the treatment of the pedicle after ovariectomy in the intra-peritoneal method. All these forms can be divided into two classes: 1, those which include the application of ligatures to the pedicle; 2, those which dispense with ligatures. The first includes the method of McDowell, Nathan Smith, and of the other operators, in which the ligature is applied either to the vessels separately or to the pedicle in two or more portions or *en masse*. The methods which dispense with the ligature are torsion, the acupressure needle, the *écraseur*, the cautery in both forms, and the method of Dr. Miner, of Buffalo, *i. e.*, enucleation. It will be seen from this that the first method adopted was the intra-peritoneal.

I wish to mention another intra-peritoneal method, termed the sub-peritoneal method, in which the pedicle is constricted beneath the layer of peritoneum. It was suggested by Dr. Hayes, of Dublin, and consists in entering the needle beneath the peritoneum, carrying it around the pedicle, and bringing it out at the point of entrance.

The intra-peritoneal method was practised until Mr. Hutchinson, of London, introduced the clamp. Then the pedicle was treated outside of the abdominal cavity, being brought between the lips

of the abdominal wound and clamped. There are some modifications of this method, but not many. They consist in securing the pedicle between the lips of the wound by acupressure needles, hare-lip pins, or some other method.

Spiegelberg and Waldeyer were the first to investigate the changes which take place in the pedicle after its ligation and return to the abdominal cavity. These experiments were made in 1868, and they were corroborated by Maslowsky, of Russia; he, going further in his investigations, endeavored to show what changes occurred in the pedicle after the application of the actual cautery. So far as I know, no experiments which show the changes occurring in the pedicle after ovariectomy, have been made in this country. Therefore, as a matter of interest, I exhibit to the Fellows of the Association the results which we obtained.

We propose to continue this series of experiments on the lower animals, and hope to present further results at the next meeting of the Association.

We selected rabbits as the animals upon which the experiments were to be made, and used ligatures of various kinds.

In the first experiment, we removed both ovaries. On one side we used a simple catgut ligature of the ordinary size employed for the ligation of vessels after operations. On the other side we used a chromatinized catgut ligature, *i. e.*, a ligature which had been submitted to the action of chromic acid (one part of acid to five of water) for three weeks. This mode of preparation has been instituted for the purpose of hardening the ligature so that it will last longer; the fear being that the ordinary catgut ligature would so soon disintegrate that hemorrhage might thus occur after its application. This ligature was prepared in St. Mary's Hospital, as are all of the antiseptic dressings which are there used. It was of large size, and had been prepared for the purpose of uniting the fragments of bone in an ununited fracture, in which case it was proposed to apply the ligature and allow it to remain *in situ*. At the end of two weeks the rabbit was killed, and a post-mortem examination was made. On opening the abdominal cavity, there were no evidences of inflammatory action in the general peritoneal cavity. It was found that the ligatures (both the simple catgut and the chromatinized catgut ligature) were completely encapsuled.

These specimens will show distinctly the conditions which existed. I also exhibit a drawing of a microscopical section showing this to better advantage than it can be seen in the specimen. In applying the ligatures, very little force was used. Only sufficient force was used to control the hemorrhage. This is a point to which I wish to direct particular attention as an important point in the discussion of this subject. The ligature was cast around the pedicle *en masse* with sufficient force to control the hemorrhage, and the ovary was removed. In applying the ligature to the pedicle it was embedded in the tissues, and at the point of application the two portions of the pedicle came in contact and became adherent. A layer of lymph covered the ligature—even the knots were covered. The layer

of lymph passed over the divided ends of the ligature. Thus a bridge was projected between the proximal and distal portions of the pedicle. What had occurred in the distal—in the free portion—the raw surface? We found that it was also covered with a layer of lymph, and on one side it had become adherent to the adjacent portion of the broad ligament. On the other side the stump was free and covered with a layer of lymph.

An interesting point in connection with this is to ascertain, especially on the side on which the stump was free, how the stump was nourished. I think there is no doubt that it was nourished in two ways. In the first place, by this bridge conducting nutrition from the proximal to the distal portion; and in the second place by interstitial nutrition, *i. e.*, by nutrition passing through the tissues beneath the ligature which was sufficient to nourish the distal portion. On the side where the stump had become adherent to the broad ligament, no doubt the distal portion formed vascular connections, and in this way was nourished.

The specimens taken from the first rabbit, which I herewith present, make it very evident that the ligature is encapsuled.

Here are the specimens removed from another rabbit, in which a silk ligature and an ordinary linen thread were used. These ligatures had been soaked in a solution of carbolic acid (one part of acid to twenty parts of water). This rabbit was killed at the end of four weeks. We found on examination of the specimens that the ligatures had not disappeared, although not completely intact. Between the meshes of the ligature cells had wandered and the ligature was in a process of disintegration. This was also seen to a certain extent, in the catgut ligature in the first experiment. This indicates the manner in which the ligature disappears—by disintegration and by the development of cells which get into the meshes; in which way absorption takes place.

In these specimens at the end of four weeks we have a layer of lymph not so voluminous, showing that there have been some absorption, shrinking, and development; and after a time we should find only a thin, fully developed layer of lymph covering the ligature and also the distal portion of the pedicle.

Mr. Spencer Wells has objected to the employment of the intra-peritoneal method of treating the pedicle. He feared that the distal portion of the pedicle would slough off and would be thrown into the abdominal cavity and thus increase inflammatory action, leading to a fatal termination. He has, however, been convinced to a certain extent by the experiments of Spiegelberg and Waldeyer, although he still adheres in great measure, I believe, to the extra-peritoneal method of treating the pedicle. He had in one of his cases a fatal termination after the employment of the intra-peritoneal method, in which he found that the distal portion had attached itself to a coil of intestine; this portion was found in a sloughing condition and lying in a pool of pus.

In the second rabbit we found that adhesions had taken place between two portions of the intestine; adhesions between the abdominal wall and the in-

testine. We are just as liable to have adhesions of the intestine to the abdominal wall in the line of the incision, as we are to have adhesion of the pedicle in the extra-peritoneal method. What might occur also if the pedicle became adherent to the intestine is this: The stump might attach itself between two coils of intestine, and, suppuration occurring, the pus would accumulate as in a pocket and escape possibly through the intestine.

The conclusions which we may deduce from one or two experiments may be of little value; still they may be taken for what they are worth. I think that they show that the intra-peritoneal method is in every way a safe method; that nature takes care of the ligature, and that it takes care of the stump of the pedicle; a point of importance to which I think that attention ought to be called, is in regard to the amount of force which is used in the constriction of the pedicle. It is desirable to simply control the passage of blood through the vessels. It is very desirable to permit the so-called interstitial circulation, nutrition being maintained beneath the constricting ligature through the connective-tissue interspaces.

Subjoined is the report of Dr. Morris Longstreth upon the appearances presented post mortem:

Rabbit No. 1.—Right ovarian pedicle tied with carbolyzed catgut; left side tied with chromotized-carbolyzed catgut—large sized.

Operation, April 10th. Autopsy, April 25th, two weeks after operation.

The animal was killed with chloroform, and the body immediately opened. The specimens removed for microscopic examination were placed in Müller's fluid.

At the autopsy, no evidence of inflammation of the peritoneum was found. All the organs of the body were healthy.

At the seat of the operation, the extremities of the uterine horns were found attached to the adipose tissue embedded in the lateral or broad ligaments, by which the uterine extremities, their fimbriated terminations, and the ovaries are held in place. This adipose tissue formed a cap over the free end of the pedicle made by the removal of the ovary. The adhesions were firm and well organized, but the adjacent parts showed no evidences of inflammatory changes or lymph.

The bloodvessels behind the seat of the ligature were enlarged and very full of blood, and in the new tissue, over and at the point of operation, were seen fine red lines resembling newly formed capillaries.

The ligatures on both sides were thoroughly covered by either the old or the newly formed tissues. The catgut was entirely concealed, except on the left side, where the heavier strands had been employed; here the ends of heavy, blackened strands could be seen and felt protruding from the crease or furrow behind the tip of the pedicle, formed by the circle of the knot. These projecting ends of catgut were, however, completely covered, although visible through the layer of semi-transparent lymph, and thus they presented a smooth

surface to the surrounding peritoneal membrane in contact with them.

The process by which the ligatures were covered, as seen by the naked eye, and in the sections under the microscope, was as follows: The compression of the pedicle, at the moment of tying the ligatures, caused a deep sinking-in of the tissues at this line, and on cutting away the ovary and its attachments, the parts on both sides of the ligatures well up over its strands, nearly covering it, but not completely. The opposed surfaces of the peritoneum, thus brought in contact over the ligature, adhered, and their union was cemented by a thin layer of lymph. By this process, the parts *beyond* the point of ligation were placed, probably very rapidly, in organic or vital relations with the parts *behind* the ligature.

The free extremity of the pedicle and all portions beyond the pedicle, though deprived immediately of blood circulating in the normal channels, received a measure of nutrient material, sufficient to maintain its vitality. This material could find its way into the tip of the pedicle through connective-tissue interspaces in the part compressed by the ligature. This compression was sufficient to prevent the passage of blood in the vessels, and thus control the hemorrhage, but was not firm enough to stop the penetration of the nutrient fluid derived from the blood. The nutrition was maintained, and rapidly increased by the route of the peritoneal surface newly adherent over and around the ligature.

The almost immediate effect of the partial strangulation on the tip of the pedicle is that the tissues of this portion become infiltrated with small cell-elements, derived partly from the cells of the part, partly from an immigration of white blood-cells. This portion, hence, becomes filled with material capable of covering the free extremity with a granulation tissue or a plastic lymph. If this material is well nourished, its capacity for rapid organization is very great, and the newly capped raw extremity may heal almost immediately. In this rabbit, however, the free extremity coated with lymph came in contact with the adjacent peritoneum, and adhered to it; between these two surfaces the microscopic sections show that union has taken place.

The ligature at the end of two weeks is well preserved, the knot well tied, and the whole firmly enclosed by a covering of organized or organizing materials. In portions there is presented the appearance of a vascular protrusion between the strand of the ligature. And if this foreign body is ever removed, the object is probably effected after the vessels have been well developed around and through its strands.

Rabbit No. 2.—Right ovarian pedicle tied with silk; left ovarian pedicle tied with linen ligature.

Operation, May 1st. Autopsy, May 29th, four weeks after operation.

The animal was treated in the same manner. The autopsy showed no form of disease, except several hydatid cysts attached to the omentum just

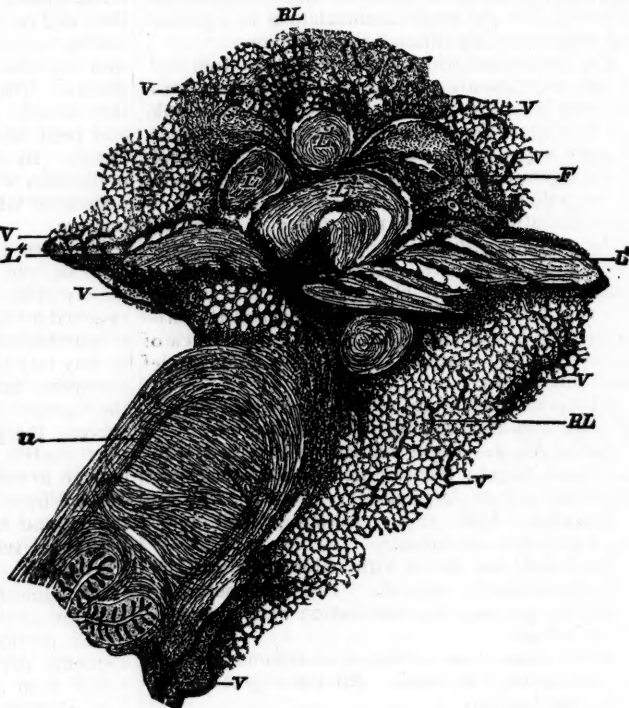
below the transverse colon. The microscope showed the presence of living echinococci.

The uterus in this animal was probably nulliparous, and its tissue, as well as that of the surrounding parts, was less voluminous. No adhesions were found in the abdominal cavity around the seat of the operations.

disease its administration produced a marked amelioration of the painful symptoms, from which he inferred that the stigmata acted less as a diuretic than as a local anæsthetic. Prof. Denucé, of Bordeaux, obtained most favorable results in vesical catarrh, the remedy appearing to possess an elective

U. Uterus. V. Vessels. F. Fallopian tube or uterine cornu. L¹, 2, 3, 4, 5, 6. Ligature. B L. Broad ligament.

The broad ligament arises from the uterus, and passes up between L⁴, 5, and 6, and under L³. The parts of it to the left (in contact with the uterus) are loaded with cells and inflammatory material. To the right is seen its fatty structure, somewhat inflamed, and containing small vessels, V. It has been caught also by L⁶, adheres to L⁴ and 5 by lymph, cells, etc. The upper portion of the broad ligament has been caught between L¹, 2, and 3. Its cut extremity has fallen over to the left, over L¹, 2, and 4, to which it is adherent by inflammatory material, just to the left of L⁴. The upper and lower portions of the ligament here come into contact and adhere. At this point, the vessels V probably anastomose. The stump of the Fallopian tube, or uterine cornu, F has been caught between L¹ and L³. Its cut portion has fallen down and to the right: the lower portion rests upon, and is adherent to L⁵.



Some peritoneal adhesions of the intestines existed which were very possibly due to the introduction of the hypodermic needle in the administration of the solution of curare at the time the abdomen was opened. The points of the two pedicles presented about similar conditions.

The healing process had taken place without the intervention of adhesions to the surface of the broad ligament. The end of the pedicle was covered by a layer of organized material, and was much less in bulk than the same parts in the former animal. The ligature of silk with which the right ovarian pedicle was tied, remained in position.

STIGMATA OF MAIZE AS A DEMULCENT, ANÆSTHETIC DIURETIC.

BY E. STUVER, B.Sc., M.D.,
RAWLINS, W. T.

FOR the last three or four years stigmata of maize has been used, especially by French physicians and surgeons, in irritated and catarrhal conditions of the bladder and kidneys, with most gratifying results.

Prof. Castan, at Montpellier, first called attention to the remedy and spoke highly of its beneficial effects in gravel and nephritic colic; in the latter

action on the mucous membrane of the bladder. These statements are corroborated by a number of other eminent practitioners; of whom, Dr. Landrieux, from a considerable number of observations, has arrived at the following conclusions:

1. The various preparations of the stigmata of maize are of use in modifying the secretions of the urinary tracts. They may also be considered to possess a distinctly diuretic action. 2. Diuresis is rapidly produced, and the increase of urine is very marked after three or four days. 3. The diuretic effects are observed not only in diseases of the organs concerned in the urinary secretion, but also in the affections of the vascular system (diseases of the heart, bloodvessels, etc.). 4. The pulse is regular, the arterial tension is increased, while the venous pressure is diminished. 5. The remedy produces no disturbance of the nervous or digestive system. The tolerance of the drug is complete and absolute, while in chronic cases its administration may be continued for three to six months without inconvenience.

In *L'Union Médicale*, April 6, 1880, Dr. Dassum summarizes a number of reported cases of chronic cystitis, dysuria, and retention of urine of many years' duration, requiring catheterization, in which,

after all the ordinary means, including washing out the bladder, had been tried and failed, stigmata of maize was used, and produced prompt and permanent relief.

In corroboration of the above-mentioned results, and in view of the fact that the merits of corn silk are not widely known, or, if known, are not fully appreciated by the profession, I submit brief reports of the following cases, taken from quite a large number treated during the last two years.

Case I.—February 9, 1883, was called to see Mrs. M.; married last autumn, and menstruated the last time on November 15, when she had some irritation of the bladder, with frequent micturition. This subsided in a short time, however, without treatment. About two weeks ago, she began to have pain in the lumbar region, pelvis, bowels, and bladder; micturition very frequent and painful, so much so, indeed, that her rest was broken at night, and she became very nervous and depressed. Pain is more severe when up and around than when remaining quiet. Gave fluid extract of stigmata of maize, one teaspoonful three times daily. Relief was experienced after the first dose, and in a couple of days the trouble had disappeared, and has not returned.

Case II.—April 13, 1883, was asked to prescribe for Mrs. B.; pregnant about seven months; first child. For some time she has been troubled with very frequent and painful micturition and pain in the bladder, which caused her a great deal of suffering. Gave fluid extract of stigmata of maize, teaspoonful three times daily, which soon relieved the frequency of and pain attending micturition, and enabled her to sleep well at night, which previously she was unable to do. The remedy had to be continued regularly until her delivery (June 6, 1883), however, as the painful symptoms invariably returned if a few doses were omitted. It never had any unpleasant effect, and promptly relieved the painful symptoms. After the birth of the child, the symptoms subsided without any medication.

Case III.—June 30, 1883, Mrs. L., strong, healthy, woman; married last January; menstruation has always been quite irregular; has not menstruated for seven weeks; never had any bladder trouble before the present attack. About ten days ago noticed some pain in the bladder, with frequent micturition, but only small quantities of urine were voided, and this on three or four occasions contained blood. The symptoms increased in intensity, and the frequent attempts to empty the bladder were attended and followed by a severe burning pain, which rendered her very miserable. Gave fluid extract of stigmata of maize, forty-five minims, every two to four hours. On July 2d, she called and stated that the bladder trouble had almost entirely disappeared, and she was feeling first rate.

Case IV.—June 14, 1883, P. N., æt. twenty-five years, painter, consulted me with regard to bladder trouble, and gave the following history: Yesterday was engaged all day in painting the inside of an engine-boiler, and, as a consequence, was exposed to the fumes of lead and turpentine without adequate ventilation. In the evening felt badly, but

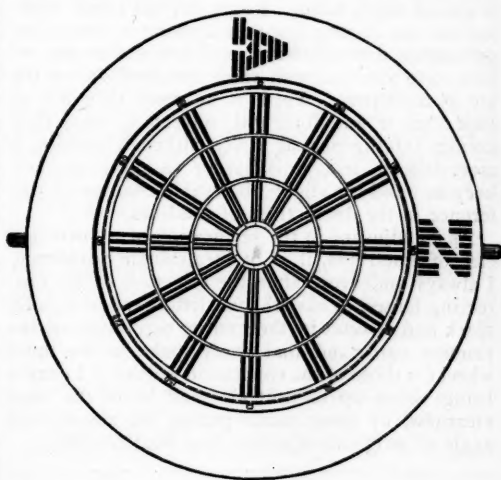
retired as usual, and, being exhausted, slept very soundly until about two o'clock (A.M.), when he was awakened by a severe pain in the bladder, and an imperative desire to urinate; the act, however, was followed by a very small quantity of bloody urine. After this, micturition occurred every few minutes, was very painful, and only a few drops of bloody urine voided at each act. Saw him at seven o'clock A.M., and found him very restless, nervous, and suffering severely. Temperature somewhat elevated, and pulse slightly accelerated.

Gave fluid extract of stigmata of maize, teaspoonful every two or three hours. On the evening of July 1st he reported that he had fastened all day yesterday, but in the evening the pain subsided, and he got a good night's rest; after this the recovery was rapid and uninterrupted.

DESCRIPTION OF A REVOLVING ASTIGMATIC DISK.

BY CHARLES A. OLIVER, M.D.,
ONE OF THE OPHTHALMIC AND AURAL SURGEONS TO ST. MARY'S
HOSPITAL, PHILADELPHIA.

THIS instrument consists of three distinct parts: A flat brass rod, thirteen millimetres wide and fifty centimetres long, perforated at each end by a small hole. The rod is immovably fastened at its centre to a circular disk thirty-three centimetres in diameter, bearing on its face three concentric series of short test-lines, similar to those of Becker, each being representatives of a certain distance, width, and angle. Upon the periphery of this card are numbers representing five degree differences of angle, commencing at 0° on the left-hand side of



the horizontal meridian, running on the under half up to 180° at the right-hand side of the same meridian. This is repeated in the opposite direction upon the upper semicircle, thus making the angles correspond, similar to the ordinary test-glass frame. Between the front card and the re-

taining rod there is a rotating disk forty-seven centimetres in diameter, having two of Pray's letters placed at a quarter angle to each other (ninety degrees apart), each having a small arrow so fixed as to meet the number of degrees on the outer card, showing the exact angle reached.

The primary principles in this instrument are in no way new, and for them no originality is claimed, as this as well as all other forms and contrivances are mere modifications of Thomas Young's original optometer. The placing of two lines of equal width and blackness at right angles to each other, which, to be seen with equal distinctness, must be set at different distances in reference to each other, if there be any asymmetry in the dioptric system of the eye.

The disk is to be fastened to a wall by the retaining rod, in a good light coming over the head of the observer placed at six metres' distance, and at a height so arranged as to bring the centre of the card on a level with the patient's eye.

If we find him able to see the 6 D. type with the eye under examination, he is to have his attention confined to the lines of the inner circle. If the sight of the eye be defective, he is to look at the outer circles. By now making him closely watch, we ask him to designate the clearest, sharpest, and blackest radius; after this has been chosen, we wheel the striped letter Z to the angle named, or to a point between, and ask which letter is the darker and clearer. He will then answer that the Z appears the plainer; now wheel the A into the place occupied by Z, and if it becomes the darker and the clearer, he will have verified his assertion, and the angles of astigmatism be obtained.¹

Its employment in the estimation of ametropia, whilst the eye is under the influence of a mydriatic, is also of much value. I have several times, without the use of any test-types whatever, made experimental determination, and found that the results were identical with those obtained during the use of the letters. Yet it is no more than fair to state, that it was done with subjects of more than average intelligence, as really, although forming a most delicate test, it is harder to appreciate and keep in mind the slight observable changes of difference in the distinctness of the lines.

As an adjuvant in the verification of a corrected case of ametropia, it is of incalculable advantage. I always endeavor, after the selection of the correcting lenses, to have the two letters appear equally black and distinct in their entire revolution of the primary card, and that every spoke in the inner wheel (or those of the concentric widths, if I cannot bring vision up to normal) shall be of the same clearness, by these means getting the amount and angle of astigmatism almost to a dead certainty.

¹ If the patient's sight is so bad that he cannot make out any of the lines at six metres' distance, he must gradually approach the test, and watch for the first angle brought out. We note the distance and angle, and place the letter Z at the chosen meridian. He is then to walk nearer and nearer until the letter A and the lines at its meridian become as distinct as the letter Z and its lines. We accurately register this new distance, and calculate the difference.

These disks can be obtained from Mr. John L. Borsch, optician, No. 221 South Ninth Street, Philadelphia.

1507 LOCUST STREET, PHILADELPHIA.

REPORT OF A CASE OF DISLOCATION OF THE FEMUR UPON THE PUBES.

BY WESLEY C. STICK, M.D.,
OF GLENVILLE, YORK CO., PA.

If Prof. Henry J. Bigelow has never met with pubic dislocation in the living subject, and Mr. Timothy Holmes with but one case, it seems to me such cases are sufficiently rare to make reports of them both interesting and profitable.

Mr. J. J., a strong, muscular man, aged twenty-three years, was working in a drift in an iron-ore mine picking ore, with his body bent forwards and standing on loose, muddy ground. While in this position earth and ore caved upon him, covering him up to his neck. After he was released he was able to stand only on his right leg, his left leg being exceedingly painful. He was removed on a spring wagon to his boarding place, a distance of nearly two miles, where I saw him two hours after the accident, lying in bed and suffering with intense pain in his left hip.

His left hip was considerably swollen, and painful to touch, and the corresponding limb was slightly flexed, abducted, rotated outwards, and advanced. The trochanter was sunk inwards, and a line drawn parallel to the femur would have pointed towards the umbilicus. I could not feel the head of the femur rotate, on account of the intense pain caused by touching the groin. I could flex the leg, rotate it outwards, and adduct it, but could not rotate inwards, nor adduct the limb.

I made an attempt to reduce, without an anæsthetic. The leg was brought to a right angle with the thigh, and the thigh flexed to more than a right angle with the body, the whole limb being still in the position of abduction and outward rotation. An attempt was now made at traction and rotation inwards, but the pain was so great that I was forced to desist.

I placed the patient on the floor, under ether. I could now feel the head of the femur rotate on the pubes. Standing between the patient's limbs I first took hold of the dislocated limb, which was very large and powerful; by placing the palm of my left hand under the knee and grasping the foot with my right hand, the limb was still further rotated outwards. Second, the limb was abducted, without any force, to nearly a right angle with the body, when a soft snap was produced, audible over the room, no doubt caused by the head of the femur slipping down from the pubes. Third, the leg was flexed to a right angle with the thigh, and the thigh flexed to a little more than a right angle with the body. Fourth, just as I began to adduct the thigh and rotate inwards, a soft snap took place and the limb fell upon the table, parallel with its fellow. I could now move the limb into any position with the same ease that I could the sound limb. The entire procedure did not consume one minute. A pillow was

placed between the knees, the legs loosely tied together, and the patient removed to bed.

In about one week the patient could walk across the room and move his limb into any desirable position, but the effect of the contusion of the soft parts had not entirely disappeared. The patient left for his home in New Jersey, and I have not heard from him since.

MEDICAL PROGRESS.

THE ACTION OF IRON AND ARSENIC IN ANÆMIA.—In a recent paper on "Some Points in the Pathology of Anæmia and on the Action of Iron and Arsenic," DR. FREDERICK WILLCOCKS, after giving minute details of seven observed cases in which systematic examination of the blood-corpuscles was made, concludes with some very instructive remarks on the subject.

Large and Small Doses of Iron in Chlorosis.—A careful consideration of the facts suggests the inference that large doses of iron usually act in chlorosis by simultaneously increasing both the number and relative color of the corpuscles, the latter being always in excess; while small, or possibly less easily absorbed doses act chiefly by increasing the number, the relative hæmoglobin value remaining constant, or even undergoing diminution at first. If the number of the corpuscles has fallen but slightly below normal, the hæmoglobin increase may alone be noted. The ultimate effect, however, of *all* iron treatment in chlorosis is to increase the hæmoglobin value out of all proportion to the numerical, and this increase continues long after the corpuscles have regained their average numerical standard. These points fully bear out the well-known clinical fact of the great value of administering large doses of iron in all cases of chlorosis from the outset.

Mode of Action of Iron.—In chlorosis the majority of the red corpuscles are young and undeveloped, and never attain their full hæmoglobin value. There is no reason to suppose that there is any impairment of corpuscle formation in this affection, since in many cases their number is but slightly reduced, and even in cases in which the number is much diminished, probably the excessive vulnerability of the young new forms accounts for the diminution.

In the severest forms of anæmia—the so-called pernicious or essential—in which the normal power of globule regeneration appears to be at a standstill, or almost entirely abolished, iron has no influence in increasing the number of the corpuscles. For, since the natural addition of young forms is almost entirely suspended, iron cannot, on our present hypothesis, indirectly increase their number by improving their vitality and hæmoglobin value. Iron not only does no good, but is actually harmful by acting as an irritant to the stomach, and thus promoting and keeping up the incessant vomiting. The concentration of the coloring matter in a very few large corpuscles, which appears to be the most prominent feature in the severest forms of anæmia, is probably due to a natural process of compensation, by which the respiratory function can still be carried on, even though the corpuscles are reduced ten or twelve times below their normal number.

In chlorosis, however, the supply of young, feebly colored corpuscles is abundant, and the number of red disks per cubic millimetre may fall in many cases but slightly below normal. The average hæmoglobin richness per corpuscle is greatly reduced, and the curative effect of iron is very rapid. A low average hæmoglobin value per corpuscle is not, however, peculiar to chlorosis,

but is present in the large majority of anæmic cases from all causes. It is in these cases that iron is indicated.

Arsenic was given in two cases of chlorosis, but it had no influence either in preventing relapse on the cessation of iron, or in improving the number or value of the red corpuscles. On the other hand, in the most intense forms of anæmia, with great diminution in the number of the corpuscles and a high relative hæmoglobin value, iron is practically useless, or even harmful, while arsenic may produce a considerable rise in the number of the corpuscles, as well as great improvement in the general symptoms.—*Practitioner*, August, 1883.

PREMATURE GENERAL PARALYSIS.—In an article on this subject, *à propos* of a remarkable case observed in a young man, nineteen years of age, DR. E. RÉGIS draws the following conclusions:

1. General paralysis is an essentially *climacteric* disease, that is to say, narrowly confined to the middle period of life, during which it habitually manifests itself.

2. The real, immediate cause of this affection appears to be a deviation of the normal anatomical process, which extends, at this time, into the minute cerebral structure; most frequently the general paralysis is attributable to no other material cause.

3. Besides this general paralysis which becomes developed in its own time, and which is the true general paralysis, there are other cases which occur unexpectedly, some before, others after the ordinary period, which may be said to range between the ages of twenty-five and sixty-five years. The first may be designated as *premature general paralysis*, the second as cases of *late general paralysis*.

4. Cases of premature general paralysis, or paralysis before the age of twenty-five years, are very rare, and only a few cases are recorded. Paralysis coming on before the age of twenty is still more rare, only one case being reported (beside the one recorded by Régis).

5. General premature paralysis, contrary to true general paralysis, has habitually a powerful etiological factor, such as heredity, syphilis, traumatism, saturnism, or general or local diathesis. These causes appear to determine in these cases an early predisposition, and to prematurely place the brain in those conditions in which it is found in mature life.

6. Premature general paralysis has, habitually, a slower progress and a longer duration; it is more frequently subject to remissions; and is susceptible of a more or less permanent cure, thus according with the possible curability of general paralyzes developed under the influence of a material or specific cause.—*L'Encéphale*, No. 4, 1883.

TOXIC PROPERTIES OF HUMAN SALIVA.—From numerous experiments on animals, GAGLIO and DI MATTEI conclude that fresh human saliva has no toxic action in itself, but that it may and does acquire toxic properties when mixed with decomposing material, or kept long in the mouth.—*Lo Sperimentale*, August, 1883.

INOSURIA IN DIABETES.—M. LABOULBÈNE, from a number of observed cases, is inclined to believe that inosuria occurring in the course of diabetes mellitus is a favorable sign, and believes that it may be regarded as a symptom of recovery.—*Revue de Thérap.*, September 1, 1883.

TOTAL EXTIRPATION OF THE UTERUS THROUGH THE VAGINA.—DR. LUIGI GUALA performed this operation on September 6th on a woman, æt. about forty-six years, on account of carcinoma. On the fourth day the patient was doing well.

CASE OF NEURO-FIBROMATOSIS.—DR. J. W. BARRETT exhibited a patient to the Medical Society of Victoria on June 6th. The patient is a sailor, who has noticed tumors growing for the last two years in almost every part of his body. None of them is larger than a walnut, and they are painless except when injured. Of late he has had several epileptiform fits.

The tumors can now be felt on almost every nerve of his body that can be examined with the finger, and vary in size from that of a walnut to that of a pin's head. They number thousands, and cannot be counted accurately.

The nerves obviously affected are the median, ulnar, musculo-spiral, radial, posterior interosseous, internal cutaneous, intercostals, posterior spinals, spinal accessory, lumbar, saphenous, femoral cutaneous, external and internal popliteal, and musculo-cutaneous nerves, together with a few of the branches of the superficial cervical plexus.—*Australian Med. Journal*, June 15, 1883.

THE THIRD CORPUSCLE OF THE BLOOD.—DR. RICHARD NORRIS, in his concluding paper on the development and coagulation of the blood, gives the following as the reasons why the invisible, colorless disk must be regarded as a constant and normal constituent of the living blood: 1. It is present in the absence of every condition which has been speculatively put forward as capable of producing it, such as solution of hæmoglobin, pressure or compression, violence, contact of two glass surfaces, removal of serum, post-mortem change, mere shedding of blood, etc. 2. It is present in its usual numbers when the blood has been diluted (as for blood-counting) with a five per cent. solution of sulphate of soda, a liquid universally held to be the best known preservative of the blood. 3. It is present as usual when that special preservative of the red disks—viz., osmic acid—is used in proportions and strength the same and also greatly exceeding those held to be necessary. 4. It holds no relation to increase or diminution of hæmoglobin in the liquor sanguinis, and is present in its usual numbers when the surrounding liquid can be shown by the spectroscopic and photogenic tests to contain a mere fraction of the amount of hæmoglobin necessary to account for its presence on the hypothesis that it is a decolorized disk. 5. It is present, and is seen in a few seconds, when a method is employed which appears absolutely to prevent any exosmosis of hæmoglobin, even though the specimen be kept for eighteen or twenty hours (colloid method). 6. It is present when the blood is diluted with a solution made by adding five grains of sulphate of soda to 100 grains of a two per cent. solution of osmic acid, thus combining the preservative powers of the two substances in their recognized strengths. 7. It is present when the blood is diluted with a solution made by dissolving hæmoglobin in water to saturation, and then adding an amount of sulphate of soda sufficient to make it into a five per cent. solution. It is scarcely conceivable that the corpuscles could yield up their hæmoglobin in such a diluent. 8. The colorless disks possess the chemical and physical characteristics of lymph-corpuscles, and have scarcely anything in common with the stromata of red disks. 9. They are present in the contents of the blood-glands, and in the lymph-fluids, before these are poured into the blood, and therefore necessarily in the blood itself. 10. Their analogue in the ovipara can be detected by means of its nucleus in the living circulating blood.—*Lancet*, August 25, 1883.

NEPHRECTOMY.—The second nephrectomy in Naples, and the sixth in Italy, was performed by DR. D'ANTONA

on June 10th for hydronephrosis. The field of operation was first washed over with a five per cent. solution of carbolic acid. The abdomen was then opened in the middle line by an incision 4.8 inches long. When the peritoneum was opened, the descending colon was found fixed, a little to the left, by two folds of the mesocolon, which covered the tumor in front and behind. The tumor was then exposed, and a trocar plunged in, a large quantity of thin, serous pus, mixed with a turbid, urinous liquid, flowing out. The tumor was found to consist of four sacs containing this liquid. The sacs were separated from their connections with the surrounding tissues, the ureter and renal vessels ligated, and the kidney removed. A large drainage-tube was inserted through an incision about one inch long in the lumbar region. The abdominal wound was then closed by eight deep and four superficial sutures. The operation lasted one hour. The temperature did not rise above 100.4° (on the first day). The discharge from the drainage-tube was never great, and consisted principally of a bloody fluid. Some sutures were removed on the seventh day, and the remainder on the ninth. The patient was discharged on July 1st, well. Microscopic examination of the fluid showed pus and mucous corpuscles almost entirely in a state of fatty degeneration; a few blood globules; groups of cholesterine crystals; no renal cylinders, and uric and oxalic acid crystals.—*Gaz. degli Ospitali*, September 5, 1883.

JEQUIRITY.—DR. A. A. FOUCHER, from a study of fifty-one cases in which jequirity was used, concludes that: 1. Jequirity inflammation has different degrees of intensity according to the state of the patient and the manner of using the drug. 2. The type of inflammation appears to be measured by three factors: abundant secretion of a liquid resembling muddy water; a grayish glazing of the conjunctiva, and palpebral oedema. 3. Jequirity inflammation has more of a croupous than a purulent character. 4. It tends to spontaneous cure when the applications are discontinued. 5. In the majority of cases it passes off in from fifteen to thirty days. 6. Corneal or other complications are only to be feared in the bad cases in which the drug is left in substance in the eye, or when the infusions are very concentrated and too frequently employed. 7. It does not appear to have any evident influence on the progress of corneal ulcers or abscesses. 8. Fresh solutions are preferable to old. 9. Cold infusions appear to be most active. 10. Powdered jequirity placed on the palpebral conjunctiva has a prompt and efficient action, provided it is not left in the eye after the lids are washed. 11. Jequirity cures true granulations, pannus, and papillary hypertrophy following chronic inflammations. 12. It is more efficacious in the non-inflammatory and chronic, than in the acute stages of these diseases. 13. The curative effect may be appreciable after a few days, but usually does not appear for a month or two. 14. It rapidly cures old and inveterate cases of trachoma and pannus. 15. It is easily used, and exempt from danger in prudent hands; and is rarely painful. 16. In some cases it is necessary to make several successive attempts to use it. 17. Cicatrices of the conjunctiva are very hard to deal with under its use. 18. It is not necessary to place the patient in a dark room during the treatment. 19. An eye which has already been subjected to jequirity ophthalmia, may be again attacked and more severely than the first time. 20. Inflammation should be produced at once; else the drug may be inefficient. 21. The acute stages of corneal and conjunctival inflammation may be benefited by its use. 22. The powder contained in macerations heated to boiling, lose their effect when subjected to a second maceration at a low

degree of temperature. 23. Salicylic acid grs. ij to f3j of water, does not appear to decrease the effect of jequirity. 24. The preparation most preferable, seems to be very fine powder applied to the conjunctiva, and then immediately removed; and cold macerations of grs. viij to f3iv of water.—*L'Union Méd. du Canada*, No. 9, 1883.

COCA AS AN ANTIDOTE TO OPIUM.—DR. PAHUR recommends coca for persons habituated to the use of opium, citing a series of cases in which it gave decidedly good results. It is an excitant of the nervous system, and antagonizes the terrible depression which follows opium-eating. In some cases the habit was discontinued after a week's use of the coca; in others it was gradually abandoned.—*L'Indipendente*, July 5, 1883.

VALUE OF DETERMINING THE PRIMARY LESION IN JOINT DISEASE AS AN INDICATION FOR TREATMENT.—In a paper read at the late meeting of the British Medical Association, MR. GEORGE ARTHUR WRIGHT, in regard to treatment, asks the questions: Is erosion more or less dangerous than excision? Does it give as good or better results? And to what cases is it applicable? By erosion he means freely laying open a joint, exposing the whole articular surface to view, and dissecting out all diseased structures with the greatest care and thoroughness.

In answer to these questions, he says that in proper cases, erosion is less dangerous than excision, because it does not open up bone-tissue. It has two great advantages in its results: first, a movable joint may be obtained; and, secondly, there is no shortening, except such as may subsequently arise from less perfect nutrition of the limb, and this his cases show not to occur.

Lastly, it is applicable to the following cases: To the knee it may be applied in all cases of well-developed chronic synovitis (pulpy disease), which do not improve under treatment, and in which the disease has not gone on to suppurative or deep excoriation of bone. To the tarsus and carpus it may be applied in a few cases of localized disease; but neither there nor in the ankle is the prospect of success good. To the elbow, it could not be, he thinks, applicable, if a movable joint be expected, unless it is done very early and in special cases, but he has not tried it. To the hip it is never applicable, and probably never to the shoulder. It is never applicable where there is extensive bone disease; where there is suppuration, unless very limited, or a great amount of caseation; nor where there is advancing tuberculosis. To be successful, it must be very complete.

Thus, of the eleven cases of erosion of the knee, in two extensive suppuration had taken place, and in two tuberculosis existed. All of these failed. At the time when he began to erase, he had not much basis to go upon in deciding what cases were suitable, and he was obliged, therefore, to ascertain for himself. He does not think a case which has been erased is much the worse for it, should it come to excision afterwards; but he would urge strongly that the erosion must be most complete and thorough, not a mere scooping out, but such removal as will, if possible, leave simply a healthy incised wound, as it were, to heal rapidly, and allow early passive movement. Hence it is only possible, when the joint is actually opened, to decide whether it is a case for erosion, or whether excision is required. It is chiefly the difficulty of removing all the morbid tissue completely that renders the operation unsuccessful in the ankle, and probably in the elbow.

His conclusions, therefore, are these: In the case of the hip, excise very early. In the knee, if seen early,

and general treatment with splints, and so on, does not speedily cause improvement, erase; if too late for that, excise. In the ankle, erosion and excision are alike unsatisfactory, and, if non-operative treatment fail, he advises amputation. Pirogoff's operation, if possible, gives the best results; though, for the tarsus, gouging, in many cases, is successful. In the elbow, failing treatment otherwise, he does not yet know about erosion, but he thinks excision is generally necessary to obtain a movable joint.—*British Medical Journal*, Sept. 1, 1883.

THE CHOLERA MICROBE.—DR. STEPHAN KARTULIS, physician to the Greek Hospital in Alexandria, reports the discovery of a microbe in the water of the canals and river. A drop of this water showed, under the microscope, a mass of micro-organisms which he had not been able to find in former researches (this examination was made on July 18th, after cholera had broken out in Alexandria). The water contained two or three kinds of algae and desmids which moved vigorously in the water. Beside these, he found two or three kinds of monads, with vigorous motion, such as euglena, hæmatococcus, and monas guttata. The protoplasm of all these, including the algae, was colored with chlorophyll. There were also infusions of different kinds. But the greater part of this water contained a great quantity of amœba, the colloid substance of which was filled with vibrios or zooglae which moved briskly. There was also seen a species of torula, one-fourth to one-half as large as a red blood-corpuscle.

But the smallest of these organisms could not be distinguished without coloring; they were, therefore, colored by Koch's method, partly with fuchsin and partly with gentian-violet, and swarms of sphaero- or oval cocco-bacteria were found colored an intense red; there were also found separate rods of the size probably of one-fourth the periphery of a red blood-corpuscle. Amongst these swarms of micro-organisms were many rows of bacteria with ramifications. Each of these bacteria had the length of the diameter of a red corpuscle, and was colored an intense red by fuchsin. Beside the bacteria, there were a few examples of a bacillus two or three times larger than a red corpuscle, and twice as thick as a tubercle-bacillus, of a slightly curved and wavy shape, and colored a beautiful red by fuchsin. These then were the organisms found in the Nile water.

The blood and stools of seven patients were examined. Swarms of micrococci and spores or bacteria were found in the first two cases, some of which were isolated. A species of torula was also found in a few cases. When colored, these bacteria appeared as very small rods. Examination of the blood of the remaining five showed many cocci, colored red by fuchsin and violet by gentian, while the red corpuscles were pale. The greater part of these cocci were round, while some were of a slightly elliptical form, and were about $\frac{1}{10}$ to $\frac{1}{15}$, some $\frac{1}{20}$, the diameter of a red corpuscle. Between these were seen single spores. In one case there were seen, in the field, five or six round bodies $\frac{1}{10}$ or $\frac{1}{15}$ as large as a red corpuscle, with movement to the right and left. Noteworthy also was the abnormal fibrine formation under the microscope, which took a form resembling that of a urine cylinder. In a third case, seven hours before death, examination of the blood showed micrococci with similar movements to those above described. In a colored preparation hundreds of micrococci were seen, many in masses, others in groups of four to six, others again dispersed singly.

There was no doubt of the nature of the disease in these cases as shown by the clinical symptoms and post-mortem examination.—*Berlin. klin. Wochens.*, September 3, 1883.

ANTAGONISTIC ACTION OF ATROPINE AND PILOCARPINE.—M. MORAT has recently studied the mechanism of the antagonism of atropine and pilocarpine on the movements of the heart. It is already known that atropine accelerates the heart-beats and that pilocarpine retards them, and also that atropine renders inexcitable the moderating elements of the pneumogastric. M. Morat has established the fact that pilocarpine paralyzes and renders inexcitable the excitomotor elements of the cervico-thoracic sympathetic.

It seems rational, then, to conclude that atropine and pilocarpine are specific poisons, the one as regards the vagus, the other acting on the sympathetic (cardiac filaments), and that this specific action makes the two substances antagonistic. This was shown by the following experiment: The cardiac accelerator nerves were excited in an atropinized animal; the frequency of the beats was not increased. It may be argued that this frequency being already at a maximum, a new irritation causes no increase. But the parallel experiment of irritating the vagus of a pilocarpinized animal shows that the number of beats is not diminished. In other words, atropine and pilocarpine act simultaneously on the two orders of cardiac nerves, and in the same manner, in diminishing their excitability. The difference of their action shows that these two orders of nerves are unequally paralyzed, sometimes in the interest of one, sometimes of the other. The two nerves are acted upon in inverse order, and unequally, by equal doses. The antagonism resides, then, not in the substances themselves, but in the nervous elements upon which they act.—*Revue de Thérap.*, September 1st, 1883.

GUMMATA OF THE PENIS.—M. OZENNE, in an article on this subject in which the details of nine cases are given, concludes that gummous syphilides may develop at the expense of different parts of the organ, and occupy four situations: the mucous membrane of the glans and the prepuce, the sheath of the penis, the urethral canal, and the corpora cavernosa. When arising from the mucous membrane, they are ordinarily situated at the level of the corona in the glando-preputial groove. Whatever may be their origin, these gummata present, when situated on the penis, the same evolution as when arising in other portions of the body; when recent, a solid tumor, when old, ulceration exists. At the beginning there is found a small nodule, very hard, forming a slight projection, rounded or hemispherical, sometimes flattened and circumscribed. Completely indolent, this callus of the penis, as it is sometimes called, presents no inflammatory character. In some cases it does not commence by a nodule; it extends widely over the surface, infiltrating the tissues to a variable depth, and then constitutes an induration in the skin (*en nappe*). It has been known to invade the entire organ and form a sort of cuirass.

When no attention is paid to the affection, the second or ulcerative period appears. The ulceration is limited and generally not deep, but sometimes burrows to such an extent as to merit the name of gummatus cavern. The edges are perpendicular, its floor uneven and contains a suppurating spot, a very adherent eschar. It is surrounded by a red and indurated zone, contrasting with the softness of the sound parts. Under specific treatment, complete cure often results; but in certain cases, it is only obtained at the price of a cicatricial deformity. A gumma situated at the meatus may produce urethral atresia; and when situated at the frenum may cause perforations and urethral fistulae.

Subcutaneous gummata of the sheath are not particularly noteworthy; sometimes they leave an adherent cicatrix which may inconvenience coitus and incurvate

the penis at the time of erection. Urethral gummata are not frequent; sometimes they invade the canal by the extension of ulceration developed primarily in the neighboring tissue; and again, but more rarely, they arise primarily in the urethra. The second form is revealed by a yellow purulent discharge, of blenorrhagic appearance, and an induration of the canal, forming a sort of pipe with hard and thickened walls. According to Veale, a certain number of strictures have this origin and are not amenable to ordinary mechanical treatment.

Gummata of the corpora cavernosa are but little known, and their histological characteristics ignored. Circumscribed, disseminated in various numbers in the two corpora, or, more often, in one only, they develop—as all tertiary lesions—in an indolent manner, and are situated toward the posterior third, on the dorsal surface or lateral parts of the organ. By their situation and numbers, they cause functional troubles more marked than when they attack other parts of the penis; at the time of erection, which is partial and asymmetric, they give it a more or less irregular form, and produce various incurvations.

As to their treatment, though local medication has caused them to disappear, it is always preferable to use general specific treatment. Cure may be complete, or cicatrices, causing more or less deformity, may persist indefinitely.—*Revue de Chirurgie*, No. 7, 1883.

THE HEREDITY OF INSANITY.—DR. E. MARANDON DE MONTYEL, of Dijon, in a paper on this subject, in which forty families are reported and followed up for several generations, draws the following conclusions:

1. Families with the hereditary taint of insanity are distinguished by (a) sterility of far more than ordinary frequency; (b) exaggerated fecundity in case of fertile unions; and (c) excessive mortality of early infancy, twenty-six per cent. instead of twenty per cent.
2. The concurrence of these three peculiarities in one family authorizes, to a great extent, the diagnosis of hereditary insanity.
3. The influence of hereditary insanity on the fecundity of married persons and the mortality of the children varies in the same family in different generations.
4. The primary influence of hereditary insanity is to increase the fecundity: this decreases more and more in succeeding generations.
5. By the excessive infant mortality and increasing sterility, these families tend to become extinct.
6. The foregoing conclusions are confirmed by the fact that, if the marriages of early generations produce a considerable number of children, succeeding marriages produce children more and more feeble, which will ultimately end in sterility.
7. It is probable that the mortality of early infancy increases with generations, and that their vitality diminishes with their number.
8. Paternal and maternal hereditary insanity, considered in themselves, confirm the general laws laid down above.
9. Paternal hereditary insanity is more powerful than maternal in influencing fecundity and sterility of married persons, as well as in the influence upon the mortality of early infancy.
10. The preponderating influence of the mother on the development of insanity in the descendants, demonstrated by Baillarger, is only diminished by the preponderating influence of the father on the mortality of early infancy, and does not exist in a larger proportion than ten per cent.
11. From this it may be concluded that paternal hereditary insanity is especially influential in the early years of life, and that of the mother later.—*L'Encéphale*, No. 4, 1883.

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EPILEPTIFORM CONVULSIONS OF CORTICAL ORIGIN.

THE first experimental studies of the functions having their seat in the cerebral cortex appeared to have no practical application. After a time, Dr. Hughlings-Jackson came to the conclusion, from pathological evidence, that the cerebral cortex was concerned in certain voluntary movements, and that some epileptiform attacks were induced by irritation of these "motor areas" or "centres."

At the outset, we must define "epileptiform," although by so doing we may embarrass our learned readers with merely elementary observations. Not to embrace other topics, it will suffice to say that convulsions of the type epileptic may be a substantive disorder—true or essential epilepsy—or they may be a merely symptomatic condition—epileptiform. In the latter case, the convulsions merely signify the existence of some "coarse lesion"—a tumor, for example. G. Fritsch and E. Hitzig ("Ueber die elektrische Erregbarkeit des Grosshirns," Reichert u. DuBois-Reymond's *Archiv*, 1870) demonstrated the electric excitability of the cortex, before denied, and proved the existence of motor centres, irritation of which by the electric current induced movements in the associated muscular groups. Simultaneously, Ferrier engaged in the same course of investigation, with the view to test the accuracy of Dr. Hughlings-Jackson's opinion. It is a most interesting fact that the experimental research confirmed the theory based on pathological observation. Ferrier demonstrated that localized epileptiform convulsions occurred in muscles in connection with the motor centre excited, and that the general convulsions began in these muscles, and

thence extended to the whole body. It proved to be a question of the degree of the local irritation: slight excitation caused localized muscular spasms; strong irritation, general convulsions. We owe to Luciani the demonstration of the important fact that the epileptiform seizures produced by cortical irritation are transmitted by heredity. Brown-Séquard has since demonstrated similar facts in the case of epileptic seizures in Guinea pigs, induced by nerve injuries.

Not all animals are affected in this way by cortical irritation. Localized epileptiform attacks are readily enough induced in the dog and cat. Dogs even vary in their impressionability, and Albertoni thinks some are wholly unexcitable. François-Franck and A. Pitres ("Recherches Expérimentales et Critiques sur les Convulsions Epileptiformes D'Origine Corticale," *Archives de Physiologie Normale et Pathologique*) hold that the same degree and kind of stimulation applied to the brain of different dogs do not always develop the same degree of reaction, but none are entirely wanting in the power of response to irritation of the cortex. Young, fully-grown, and vivacious dogs of good stock are better subjects for the production of epileptiform attacks than are common, old, low-bred, and stupid animals. Cats are good subjects for these experiments.

The kind of irritation employed to incite convulsions is electrical—galvanic or faradic; but mechanical or chemical excitation may produce the same effect, although much less promptly and certainly. Thus, given a wound of the cerebrum of a dog, the epileptiform seizures are not likely to occur at once, but at a variable period after cicatrization of the wound, and then without any appreciable immediate excitation.

At what point must the irritation of the cerebral cortex be applied to develop partial epileptiform attacks? It is perfectly well known that when the cerebral convulsions are irritated in certain animals, convulsions follow; but is there a limited epileptogenic zone, as there is a well-defined motor zone? It seems to be definitely established now that, in the dog, at least, excitation of any part of the motor area may produce epileptiform attacks. MM. François-Franck and A. Pitres believe that convulsions may be caused by electric irritation of almost any point on the exterior surface of the brain, and have, indeed, developed them by very intense and prolonged faradic stimulation of the sphenoidal and occipital convulsions, which are placed considerably without the extreme limits of the motor zone. They explain this result by the *diffusion* of the current, and hold that it is only excitation of the motor zone which really produces epileptiform seizures. Here a very weak current

and consequently feeble irritation will cause a prompt explosion of an epileptiform character; but in other situations, only currents sufficiently intense to insure diffusion through the cerebral mass will produce this effect.

When the cortex of the epileptogenic zone is removed, it is found that excitation of the sub-cortical white substance produces simple movements of the muscles on the opposite side in anatomical connection therewith, but never convulsions. That the experimental observations on which this statement is based may not be vitiated, it is necessary to remove or destroy every part of the cortex. It is the failure to appreciate this essential condition that caused the fallacy in the negative observations of MM. Bubnoff and Heidenhain ("Ueber Erregungs- und Hemmungs-Vorgänge innerhalb der motorischen Hirncentrum," *Pflüger's Archiv*, Band xxvi.). These physiologists caused convulsions by irritating the white matter of the *centrum ovale*, because, as asserted by Franck and Pitres, they had not entirely removed the associated cortex.

Galvanic or faradic stimulation of the highest intensity, acting on the corpus striatum, and optic thalamus causes neither muscular movements nor convulsions. When, however, even weak excitation is applied to the internal capsule, muscular contractions of a tetanic character occur, chiefly on the opposite side of the body, and somewhat on the same side, but they cease promptly on the removal of the irritation, and do not have the convulsive character.

Various conditions affect the excitability of the cerebral cortex, and are, therefore, concerned in the production of epileptiform seizures from irritation of the epileptogenic zone. The excitability of the brain may be increased or lessened by the influences to be considered presently. First, as to the conditions under which the excitability is lessened: the brain of a new-born animal is unexcitable, and continues so for from fifteen to twenty days after birth. The anæsthetics—ether and chloroform by inhalation, and chloral by intravenous injection—when carried to the point of complete insensibility, abolish absolutely the excitability of the brain. Bromide of potassium possesses the same property if its administration is carried to a sufficient extent. Albertoni has, indeed, made use of this method, as our readers are informed, for demonstrating the nature of the therapeutical property possessed by the bromides. Secondly, the excitability of the brain may be increased. Of all the causes acting thus, the most powerful is congestion of the cortex, especially inflammatory afflux of blood. Indeed, it appears from some experiments of MM. François-Franck and A. Pitres that simple congestion, such as may be caused by section of the cervical sympa-

thetic, does not affect the excitability of the cortex, but a slight degree of inflammatory congestion renders it, in a high degree, responsive to irritation. Certain medicines have the power to increase the excitability of the brain, notably strychnine, atropine, and, probably, picrotoxine, cinchonidine, and some others. The result of the action of these influences is to promote the readiness of response of the cortex to various forms of irritation. We have thus an immediate and striking illustration of the value of these researches in promoting our knowledge of morbid states, and of the effect of remedies on them.

THE TREATMENT OF VESICAL CATARRH.

No one who has had much experience in the treatment of catarrh of the bladder can have failed to realize the difficulties in the way of its cure, and the extreme annoyance on finding, at the daily visit, that the patient is still unrelieved.

Heretofore, our armamenta have consisted in the use of the numerous infusions, of which those of uva ursi, triticum repens, buchu, and pareira brava are typical examples, and of which none appear to be of any value except as diluents; of the numerous alkaline mineral waters, which are sometimes useful for the same reason, and sometimes harmful because they render the urine more alkaline when it should be acid; of balsam of copaiba, which is more frequently beneficial, but which not more than one stomach out of ten can bear beyond a few doses; of sandal-wood oil, which is nearly, but perhaps not quite, as efficient as copaiba, but is much better borne by the stomach; and finally, of the exclusive skim-milk diet, which we have known to answer when all else has failed, although by no means always successful. Then there are the topical applications, of which warm water carefully injected into the bladder is about as useful as any, although injections of weak solutions of nitrate of silver and of bichloride of mercury, of the mineral acids, and of carbolic acid are recommended. All of these measures have been used in every sort of case, without any constancy of result, although any one of them may, at times, have been found useful.

Among these resources, we should not omit to mention drainage of the bladder through the forcible dilatation of the urethra in females, and through a perineal opening in males, which have been of service in not a few cases.

This being the unsatisfactory state of our therapeutics of this troublesome malady, any suggestion which promises to be efficient will, of course, be gladly received. Two measures, of comparatively recent suggestion, seem to demand further trial. These are the internal and topical use of chlorate

of potassium, and the internal exhibition of salicylate of sodium.

The administration by the mouth of the former remedy was recommended by EDLEFSEN several years ago (*Deut. Archiv f. klin. Med.*, Bd. xix., Dec. 1876), and its use in three per cent. solution as an injection into the bladder, more recently (*Deut. med. Woch.*, Jan. 1882) by BOEGEHOLD. Still more recently this same surgeon (*Ibid.*, Aug. 29, 1883) has brought forward salicylate of sodium as a specific in certain forms of acute and subacute vesical catarrhs. Salicylic acid was suggested by Fürbringer as long ago as 1875 (*Berl. klin. Woch.*, No. 19), for a catarrhal state of the urinary tracts attended with ammoniacal urine, and by Maas, in König's *Text-book of Surgery*, on account of its antiseptic and antifermentative properties. Boegehold tried it at that time with inefficient results, which he now ascribes partly to insufficient doses, and partly to the fact that it was not used in cases to which it was adapted.

In no disease is it more important that treatment should be based upon a correct appreciation of the cause than vesical catarrh. At least three distinct forms may be recognized, 1st, that due to cold; 2d, that resulting from extension of a gonorrhœal inflammation; and 3d, that caused by decomposing urine due to obstruction, and the introduction of decomposition bacteria whether through unclean catheters or otherwise. The latter can only be relieved by measures which will cleanse and disinfect the bladder as well as remove the obstruction. Such are solutions of salicylic acid, carbolic acid, and corrosive sublimate, together with the cure of stricture and of enlarged prostate by catheterization and parenchymatous injection with iodine.

On the other hand, in catarrh of the bladder from cold or by extension of a gonorrhœa, which affect usually only superficial layers of the organ, the two remedies referred to, the chlorate of potassium and salicylate of sodium may be used with every expectation of success. Of the former a five per cent. solution may be ordered, and a tablespoonful given every two hours, as originally suggested by Edlefsen. To this may be added, if necessary, but not until after the acute stage is passed, injections into the bladder of a three per cent. solution of the same remedy.

Of salicylate of sodium, half a gramme, or seven and a half grains, may be given in solution or in a wafer every two hours, for from three to four days, when the acute symptoms will generally be found to have abated; after which the same dose may be continued for eight days longer. Should the extraordinary advantages claimed by Boegehold for this remedy be sustained by experience, we shall have a powerful adjunct to our means of treating cystitis.

Because he says of it that, for certainty, promptness, and convenience, it is equalled by no other.

DIGITAL DIVULSION OF THE ORIFICES OF THE STOMACH.

ON the 9th of July, 1883, PROF. LORETA, of Bologna, divided the cardiac orifice of a girl of twenty years of age who had suffered from stenosis for four years, and who, although of average height, was reduced by slow starvation to a weight of seventy-five pounds. Various therapeutic measures had been tried in vain upon the case, and it was decided to forcibly open the stenosed orifice, in the hope that a result such as had been attained in operations on the pylorus might be obtained. The operative process was different in this case from that of the original, performed by Prof. Loreta in a case of pyloric stenosis, as the location and direction of the abdominal and gastric wounds were quite different. The operation was followed by no unfavorable symptoms, in the form of fever, peritoneal inflammation, or vomiting. The abdominal wound healed by the first intention, and in seven days the woman was in a fair way to recover.

The fifth digital divulsion of the pylorus, and the fourth done by Prof. Loreta, was performed on July 15, 1883, the subject being also a woman, the disease of the stomach having existed for three years. She had vomiting attacks daily, and was very much reduced by the gradual starvation. The operation occupied but twenty minutes, there being no adhesions, and no difficulties other than those naturally belonging to the method. As in the other case, there were no febrile or inflammatory sequelæ. On the eighth day, when the dressing was removed, the abdominal wound was found united by the first intention. In ten days the immediate cure was secured, there having been no vomiting or other disturbance of the stomach since the section was made.

Time alone can test the result of the four cures effected by this method of forcible dilatation, and determine whether, and to what extent there exists a danger of a return of the stenotic condition. Thus far we have heard nothing unfavorable of the cases operated upon, and it is possible that they may be permanently benefited. Forcible dilatations in other parts of the human body are so liable to be followed by contraction that we shall hold the operation of Loreta in doubt until we have positive evidence that its cures are permanent. The demand for the operation in Italy shows that malnutrition must prevail to a large extent, and that ulcerative states of the stomach ending in stenosis are not at all uncommon. Such a condition is very rare in the United States, as we have a generally well-fed peasantry, with no pellagra or malacosteon. Possi-

bly there may be a demand for this operation even here, but the cases must be of very infrequent occurrence.

CONTAGIOUS DISEASES OF ANIMALS.

THE action of the German Government as to American pork and the frequent discussions in the French Chamber and the English Parliament of questions relating to American meat, both alive and dead, make it incumbent upon this Government, in the interests of trade, not only to guard against contagious diseases of animals, but to have some system of inspection for meats and for live stock sent abroad. While there is much that is sensational in the reports as to epidemics of contagious pleuro-pneumonia, its occurrence is too frequent.

A few cases of it have recently occurred in Salem, Connecticut, but not, as was reported, derived from New Jersey. Long Island and Staten Island are not rid of the disease. In New Jersey there are at present no known cases. Several herds were affected in the vicinity of Newark early in February last. Inoculation was commenced in accord with the modifications and improvements of methods advised by Wilhelms, Rutherford, Williams, and Fleming. In these cases, the inflammation confines itself to muscles and connective tissue, and does not attack the lung. But the most interesting asserted fact is that the inoculated animal will not communicate the disease. It is a comparative study of great interest to the epidemiologist. These inoculations have been under the charge of the New Jersey State Board of Health.

Some valuable inquiries into this and other kinds of communicable diseases of animals are being conducted by the Agricultural Department at Washington under the care of Dr. Salmon.

COLLECTIVE INVESTIGATION OF DISEASE.

APROPPOS of the editorial in our issue of Sept. 22d, on "The Collective Investigation of Diseases," we would state that at its last annual meeting held at Norristown, in May of this year, the Medical Society of the State of Pennsylvania passed a resolution providing for a committee of three members on each of the following branches: Medicine, Surgery, Diseases of Women and Children, Ophthalmology and Otology, Nervous Diseases, Insanity and Idiocy. It is the duty of the committee to prepare a series of questions calculated to obtain the history, symptoms, and treatment of the different forms of disease. When these questions are prepared, they are to be sent to the members, with the request that they fill out, in full, one case of the disease specified in the list of questions, and return the same to the chairman of the committee on that

branch; so that by this means a collective investigation of the different forms of disease may be made, and a more thorough account obtained of all the facts bearing on the disease in its different stages. When these answers have been received, the different committees shall arrange the facts thus procured for presentation to the Society.

The resolution was offered by Dr. Curwen, and, we presume, it was suggested by the invitation of the Committee of the British Medical Association. Since, however, the State Society of Pennsylvania appears to be the only one which has taken any action, and as there will be no opportunity for others to take similar action for nearly a year, we reiterate our suggestion that the chairman of the American Medical Association Committee select at once from the members of the Association a number of physicians in each State, who can make a beginning; using, at first, the sets of questions prepared by the English Committee. In the case of Pennsylvania, the existing committees might be re-appointed and enlarged, if necessary.

THE PRESENT STATUS OF THE CODE CONTROVERSY.

THE Code controversy in New York has now reached the stage in which argument has ceased, and the strength of the respective parties is being carefully computed prior to the appeal to the ballot in the New York County Society—the birthplace and stronghold of the New Code—on the 29th proximo, and in the State Society next February.

A poll of the 1661 physicians whose names are in the New York City Medical Register shows that 764 adhere to the National Code, 404 are advocates of the New Code, and 54 of no code. The remainder are uncommitted. In the New York County Society, we are reliably informed, the advocates of the National Code are largely in the majority.

The canvass of the State, which is still in progress, shows that there are 2405 physicians who adhere to the National Code, 924 to the New Code, and that there are 215 who advocate having no code.

These figures are extremely gratifying. They show that the profession of the State has been completely misrepresented in the State Society at its last two meetings, and they unerringly point to the speedy revocation of the New Code.

THE City of Newark has recently constructed an open sewer over the Newark meadows, for a large ward of the city. It has a very imperfect fall, but by an open canal alongside, which catches the incoming tide, it seeks a flush which shall carry out the sewage to the bay. We shall see whether salt water will not precipitate a part of the sewerage, and, after a time, the open sewer fill and become a nuisance.

SPECIAL ARTICLE.

DOES VIVISECTION PAY?

Two chief objections are urged against vivisection—its cruelty and its uselessness.

That American experimentalists (and we only have to do with them) avoid all possible pain by the use of anæsthetics is positive truth; and it is done equally in the interest of science, to avoid pain as a disturbing factor in their problem, and on the score of humanity. But, to say the least, the charge of cruelty comes with ill grace from those who cage ill-fated birds for the pleasure of their song; who cause the sacrifice of thousands of birds and fur-bearing animals for mere ornament in dress; who "boil alive" lobsters and terrapin for the pleasure of the palate; who "torture" fish by the hook, and look with equanimity upon their painful gasps and convulsive struggles to escape from suffocation; who maim birds and inoffensive beasts in the pleasure of sport; who, without anæsthetics, torture and mutilate cattle, horses, sheep, swine, and poultry to make them a little less annoying while alive, or a little more tender when dead; who ruthlessly wound and kill wolves, wildcats, and snakes to promote the safety of man, and who poison, or otherwise "torture," by dog or cat or trap, with more than the persistence of science, rats, mice, and all sorts of vermin, solely to promote man's comfort, and yet object to a comparatively few scientific experiments for the promotion of his comfort, and beyond that to prevent his sickness, to cure his maladies, to prolong or even to save his life.

Vivisectionists do *not* delight in cruelty. Their sole aim is the increase of knowledge, and of knowledge that will be useful to man and animals. That students do all sorts of cruel experiments merely for amusement, or to obtain dexterity in operating, is neither probable nor true. It is not probable, for vivisection requires a deal of time and large outlay for instruments and animals, and students have neither a surplus of time nor of money; and, as a matter of *fact*, students rarely ever perform any vivisections at all. The atrocious misrepresentations by the anti-vivisectionists (not to use a shorter and more vigorous word) are simply amazing in women and men otherwise honest and truthful.

But the second is the more important point; for if it can be shown that vivisection gives us knowledge which could not be otherwise obtained, and which is of immense good to man and beast, and, on the whole, lessens suffering and saves life, it must be granted by any one whose reason is not warped by sentiment that it should be promoted instead of being abolished.

That Harvey discovered the circulation of the blood and Sir Charles Bell the functions of the two nerve-roots by vivisection has been denied by the anti-vivisectionists; but any one who will read their works, and see their experiments on living animals *described in detail*, and then deny the fact that they did such experiments, must be adjudged

incapable either of understanding facts correctly, or of reporting them truthfully. And upon the two facts they demonstrated hang well-nigh "all the law and the prophets."

Again, the medical uses of electricity, the modern methods of artificial respiration in resuscitating the nearly drowned, the present operation of transfusion, and our knowledge of the sounds of the heart, and therefore of valvular diseases, have all been developed by older experiments on animals and recent researches founded upon them.

But it is more the modern progress by research that we wish to draw attention to. John Hunter's famous experiment of tying the artery which fed the antlers of the stag, the growth of which he was studying, led to his operation for aneurism—an operation that saves hundreds of human lives every year. But its brilliant results have been quite equalled and its beneficence increased by modern researches upon the action of the ligature, and upon various materials for ligature. Animal ligatures, which are non-septic, and which are cut off short and absorbed, are as great an advance in the treatment of hemorrhage and of aneurism as was Hunter's operation. At the opening of this century, ninety per cent. of the cases of aneurism died, and ten per cent. were cured. At present, ninety per cent are cured, and ten per cent. die.

Along with this vast improvement have come others, which are no less striking and beneficent. Physick and McClellan and Mott and Mütter would stand amazed at a modern operation, "painless, bloodless, feverless, and almost [and in many cases entirely] without suppuration," as compared with those forty years ago. The last two gains are due directly to vivisection. Founded partly on previous acquisitions, but chiefly on his own vivisections Lister showed us how to operate in such a way as to obtain union by first intention without fever or suppuration, and has consequently enabled us to do operations, which twenty years ago were Utopian, both in their desirability and their impossibility. And this means *human life saved and human happiness increased*. While anæsthetics and Esmarch's bandage are not wholly due to vivisection, their use is largely the direct result of knowledge so derived. Indeed, vivisection will before long, we suspect, reveal to us the ideal anæsthetic that will enable us to abolish pain, retain the consciousness, and therefore the coöperation, of the patient, and this too with safety. Even now, Bert is showing us by vivisection how to give anæsthetics with less danger than heretofore.

Our exact knowledge of Nature's methods of repair in fractures, and of the rôle of the periosteum in diseases of bone, is directly due to experiments on animals, and our practice has improved amazingly as a result—a direct gain to every patient with a broken or a diseased bone.

In medicine as well as surgery only a few of the advances due to vivisection can be named. The classical experiments of Virchow, by which he showed the effects of small solid fragments—emboli—broken off from blood-clots, or from diseased valves of the heart, have thrown more light on these

processes of disease than the post-mortems of a century. The experiments of Bernard on the origin of diabetes have changed midnight darkness to morning dawn, and some time the noon will come and with it the cure of the disease. The same may be said of the researches of Klebs and Tommasi-Crudeli on malaria, of Wood and Formad on diphtheria, and many others like them.

Nearly all our modern knowledge of the processes even of inflammation, are due to vivisections by Cohnheim, Stricker, Norris, Klebs, and their co-workers. Intelligent and accurate acquaintance with the processes of disease is the first step in the correction of errors of past treatment and in establishing a wiser course in the future.

In the cruel experiments by disease on man, which the anti-vivisectionists insist shall be the only ones we shall use, wide-spread agony and frightful slaughter of human beings by thousands replace the far less painful sacrifice of a few of the lower animals. Thiersch experimented on 56 mice by inoculating them with cholera discharges. Of the 56, 44 sickened, and 14 died with choleraic disorders. So much for the vivisectionist. Two water companies in London experimented on 500,000 human beings by inoculating them with cholera discharges by impure water during two epidemics. By one epidemic alone, and by one company alone, 3476 human beings were killed, of whom over 2000 would have escaped had the lesson of Thiersch's 14 mice been heeded. So much for the antivivisectionists. Which was the most cruel? Which the most useful? Yet, while Thiersch, were he a Pennsylvanian, might, with impunity, poison his 14 mice with arsenic to abate a nuisance, it is soberly and seriously proposed that he should be prohibited from poisoning them by cholera discharges, in order to abate, and if possible abolish, a dreadful pestilence!

Nor is this the only pestilence to be abated. Cholera has slain its thousands, but consumption its tens of thousands. Familiarity deadens our horror of ordinary diseases, but it does not change the mortality returns. A more intelligent hygiene, thanks to Villemin and other vivisectionists, now saves many a life; and though with doubts, as if we can scarce believe it to be true, we do seem to be possibly on the eve of the discovery of the causes of consumption and many of the zymotic diseases. Nay, more; the time may not be far off when we shall be able to eradicate or neutralize their poisons. The whole study of the effects of microscopic organisms is but in its infancy. Their effects can only be studied by means of experiments upon animals. To prevent them means to postpone life-saving discoveries for many years. Twenty thousand persons die annually of snake-bite in India alone. If, by preventing experiments with snake-poisons on animals, we postpone the discovery of an antidote for five years, at a cost of untold suffering, and of one hundred thousand human lives, instead of one-hundredth that number of dogs, have we done wisely? Nay, have we not acted cruelly?

The whole natural history of the trichina in pork, its danger to man, and the modes of making it

harmless even if eaten, is due to vivisection. Yet all such beneficent progress the Anti-vivisection Society will *stop*. They mildly propose at present only to "regulate;" they mean—we know what we allege—they mean to *suppress all vivisection*.

Thanks to vivisection, we are beginning to understand the localization of function and of disease in the brain and spinal cord, and this has given us an accuracy of diagnosis and of treatment heretofore impossible.

As to the use of various remedies, almost the whole of our accurate scientific knowledge of their actions are due to vivisection. We may experiment with them, it is true, on man, but we suspect that the president of the Anti-vivisection Society himself would probably dismiss his doctor if he did. Asking for his cur or cat, the doctor would, of course, be denied. What then must the doctor do? Give his remedies with the best light he has. And pray what is this but an unsatisfactory experiment, as unwise as it is unscientific? Besides new drugs, such as carbolic acid, physostigma, chloral, pilocarpine, pepsin, pancreatin, nitrite of amyl, and others added to our stores by experiment, there is scarcely a drug of importance that has not been investigated experimentally, its actions demonstrated both in moderate and in dangerous doses, its alkaloid, if any, made useful, and its proper applications to disease determined with a scientific accuracy (which means again the saving of human life and the lessening of human suffering) utterly unknown thirty years ago. Such experiments *cannot* be made on man.

In disease the experiment is so complex that we cannot say with precision what the effects of the remedy are. In healthy animals we can. And we can vary the conditions under which the drug is used so exactly as to eliminate possible errors. We can also give doses dangerous to life; discover the reasons for the dangers and so learn to avoid or to neutralize them in man. The rational treatment of disease to-day owes more than one-half to vivisection.

The argument that drugs do not act alike on man and animals has been used by many. But while it is true in a few exceptional cases, any one familiar with the facts would smile at the ignorance or prejudice of any who to-day seriously advance such an argument. If evolution has given animals "equal rights" with man, as Mr. Tait maintains, among them is the right to be poisoned by the same drugs and cured by the same remedies as his master.

In not a few medico-legal cases, as has been well shown by Gamgee, the physiological tests—*i. e.*, experiment on the lower animals—are among our most accurate methods of detecting criminals; yet all this, it is proposed, shall be given up and the poisoner go free.

And finally the lower animals themselves are benefited by vivisection to a degree unappreciated, save by a few. A general must sometimes utterly sacrifice one corps of his army to win a battle. The few lives lost there save the whole army. Pasteur has slain not a few animals in his researches on splenic fever and chicken cholera. What now are the results? Last year it is stated that 80,000 sheep

were "vaccinated" in one department (Eure et Loire), and only 0.65 per cent. died of splenic fever as against an average for the last ten years of 9.01 per cent. or nearly sixteen times as many; of 2308 vaccinated sheep 8 died, or one in 288, while of 1659 not vaccinated 83 died, or one in 20. If the anti-vivisectionists have their way, the dumb brutes may well pray to be delivered from their friends.

Moreover, another question arises. There are not in all the United States over a dozen of professed vivisectionists who for any large part of the year give up their time to this work. Nor are there in this State over a dozen who work at it even irregularly. Is it worth while to organize a great society, hold public meetings, flood every city with documents, and spend money largely to suppress these few? Suppose their work *is* of doubtful value, should man or the animals have the benefit of the doubt?

REVIEWS.

INDEX-CATALOGUE OF THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE, UNITED STATES ARMY. AUTHORS AND SUBJECTS. Vol. IV. E-FIZES. 4to. pp. 12, 1033. Washington: Government Printing Office, 1883.

THE fourth volume of the *Index-Catalogue* has just been published, and includes the letters E to Fizes, covering 1033 pages, and 4802 authorities, 12,361 book-titles, and 49,977 journal articles. A cursory inspection of the volume shows that the same painstaking care and intelligent supervision in its preparation have been exercised by Surgeon Billings as in that of its predecessors.

The extent of the references may be shown by a few examples selected at random. We find 36 double-column pages given to the bibliography of the ear, 109 to the eye, 28 to the femur, 11 to empyema, 328 to fevers, 38 to fistula, etc.

The publication of this work reflects the highest credit on the intelligent liberality of our Government, and we trust that nothing will occur to interrupt its speedy progress to completion.

OBSERVATIONS ON LITHOTOMY, LITHOTRITY, AND THE EARLY DETECTION OF STONE IN THE BLADDER, WITH A DESCRIPTION OF A NEW METHOD OF TAPPING THE BLADDER. By REGINALD HARRISON, F.R.C.S., etc. 8vo. pp. 71. Illustrated. London: J. & A. Churchill, 1883.

THIS rather long title precedes a short book containing an agreeable and instructive account of some of the author's experiences and conclusions in regard to the general subject of stone. Those who are familiar with Mr. Harrison's writings need not be told that he has a pleasant way of putting his opinions, nor that these opinions are well worthy of attention. The book now under consideration is not likely to prove especially valuable to the student; but the surgeon can gather from it just such ideas as he would look for from another surgeon with whom he might be conversing. Everywhere one finds in it hints which are not to be looked for in text-books, but which make pleasant and profitable reading to one who has no longer need to be instructed in the rudiments of lithotomy and lithotripsy.

The part of this book which refers to tapping the

bladder contains an account of a case where Mr. Harrison relieved the tension of a bladder obstructed by prostatic hypertrophy, by passing a trocar and canula into the former through the perineum and prostate, and leaving the canula in as a permanent drain. The effect was not simply immediate relief, but eventually closure of the wound, recovery of the power of retention and voluntary urination, together with an almost total disappearance of the functional and physical evidences of enlarged prostate. This procedure he now recommends for general adoption. In this he fortifies himself with the endorsement of Prof. S. D. Gross, to whom his book is dedicated. American surgeons have contributed very materially to Mr. Harrison's opinions, as is evident from the frequency with which he quotes them, and the manifest respect and regard he feels for them. It would appear that it was not without its effect that he has had the opportunity to meet so many representative American surgeons in their own country. Certain it is, that in some way Mr. Harrison has acquired a manner of writing which makes the critic feel most kindly toward him, and which adds a charm to the excellent matter of his literary work.

SOCIETY PROCEEDINGS.

THE TRI-STATE MEDICAL SOCIETY.

Ninth Annual Meeting, held at Indianapolis, September 18, 19, and 20, 1883.

(Specially reported for THE MEDICAL NEWS.)

THE Tri-State Medical Society held its ninth annual meeting in English's Hall, Indianapolis, Indiana, on September 18, 19, and 20, 1883.

TUESDAY, SEPTEMBER 18TH, FIRST DAY.

The meeting was called to order by Dr. J. Livingston, of Indianapolis, at eleven o'clock A.M. After prayer, Dr. Thompson introduced DR. WM. PORTER, of St. Louis, Mo., THE PRESIDENT of the Society, who at once assumed the Chair.

GOVERNOR PORTER, of Indiana, was then introduced, and delivered an

ADDRESS OF WELCOME,

as follows:

Gentlemen: It has been said by some wise man that one man with a will outnumbers fifty without, and in that respect, at least, *this* assembly is large and animating.

The salutations of our morning papers have so cordially welcomed you that further words are hardly needed to strengthen the assurance; nevertheless, as an official representative of the State, I desire to extend to you a most cordial greeting. You have your national, your State, your county, and your neighborhood associations, but this is not one of them. This may properly be called your kinship convention. The inhabitants of Illinois, Kentucky, and Indiana are allied by blood, similar habits, and largely by identical conditions affecting health and disease.

I do not think any of the professions are more progressive than yours. An opposite opinion prevails among some who misinterpret many of your rules, honestly designed, whatever their effect may be, to separate quackery and charlatanism from true medical progress. No profession is more hospitable to new suggestions and aids—none subjects them to fairer and juster tests to prove their value.

After referring to the enlargement of the domain of medical science, and the application of the principles of preventive medicine, he said:

Why should you not be welcomed here by a State?

The progress and glory of a State depend upon the mental and physical vigor of its citizens. Health invigorates, disease enfeebles. Whoever, in a large way, can prevent disease, or remove hereditary taints, or show how great cures can be wrought, performs a high service to the State, for which it may well feel grateful. The great physician, in his own calling, may perform the service of a patriot, not less than the warrior and the statesman.

DR. J. L. THOMPSON then welcomed the Association with some pleasing remarks, and presented the report of the Committee on Programmes and Arrangements, which was accepted.

The SECRETARY, DR. G. W. BURTON, of Indiana, then read his report, including the minutes of the last meeting, and the work done during the year, mentioning the growth of the Society and its library; alluding to the death of Dr. J. W. T. Gerrish, of Indiana, one of the early members of the Society. Letters were read from Drs. S. D. Gross, Austin Flint, and others, regretting their inability to be present at the meeting. Dr. Gross called attention to the resolution he introduced at the Cleveland meeting of the American Medical Association in reference to the training of nurses in the smaller cities.

A paper, detailing a case of

TORTICOLLIS,

by DR. D. S. BOOTH, of Sparta, Illinois, was read by Dr. Byrd. The case was congenital, in a boy aged twelve, and caused an extreme deformity, but was entirely relieved by the division of several muscles by the tenotome.

DR. AP MORGAN VANCE, of Louisville, then read a paper on

THE TREATMENT OF COMPOUND FRACTURES,

noting the opposite opinions upon the subject held by different authorities, one saying treat all cases as open wounds; another, close them all; a third says, supplement the first by drainage. It is the practice of Dr. Vance to dress compound fractures as simple, using the plaster-of-Paris dressing entirely, and trusting to the thermometer to tell if the case was going through as simple or compound. He used no antiseptic, but placed absorbent cotton around the wound. Some hemorrhage always occurs under traction, which purges the wound, and it heals under the scab cotton and blood. Fever of $101\frac{1}{2}^{\circ}$ to $102\frac{1}{2}^{\circ}$, that cannot be otherwise accounted for, calls for investigation, but there ought to be no haste in opening the dressing, particularly if the elevation occurs within forty-eight hours. In such cases he gives a mercurial, followed by quinine; if it occurs suddenly, from the third to the sixth day, he opens the wound and gives good drainage to the pus. In hot weather the use of ice bags increases the chance of success.

AFTERNOON SESSION.

A paper was read by DR. H. J. B. WRIGHT, of Olney, Ill., on

NERVE-STRETCHING,

which he has found to be of value in sciatica; five out of eight cases being cured, two dying of cancer. Dr. Wright operated upon a laborer, æt. 48, who had been treated intelligently in the usual manner for a long time; the nerve was stretched, inflammation occurred, pus formed, and the case was cured.

DR. BYRD, of Quincy, reported a case resulting in a cure.

DR. R. HAUGHTON, of Ind., discussed the pathology of the operation, holding that the molecular condition of the nerve trunk was interfered with.

DR. WRIGHT stated that though the operation was empirical, so long as it was safe and successful the profession was justified in resorting to it. It had no effect upon a case of anæsthesia of fourteen years' standing, this being the only case of failure.

A paper on the *Pathology and Treatment of Pneumonia*, by DR. J. C. BUNDY, of Ill., was then presented, and in the absence of the author, was read by Dr. Byrd.

DR. W. S. HAYMOND, of Indianapolis, then read a paper on

A CASE OF FRACTURE OF THE OS FRONTALIS OF EIGHTEEN YEARS' STANDING.

The two tables were united. The bone was almost ulcerated through. The decayed parts were removed and the patient was entirely relieved.

Some discussion followed this paper, which gradually turned upon the question of trephining for epilepsy, in the most of which cases it was thought to be productive of good.

DR. J. E. LINK, of Terre Haute, read a paper upon the use of

THE ROLLER BANDAGE AS A DRESSING FOR STUMPS

after amputation, and as a means of preventing erysipelas and abscess. He used layers of sheeting, wrapped about the stump, leaving it open for drainage. Of his two hundred cases of amputations, he said, not a patient had died from the operation, nor suffered from after-pains. He used no antiseptics, and no formation of pus took place. This paper, and some cases introduced to show the bandaging, excited considerable interest.

EVENING SESSION.

THE PRESIDENT, DR. WM. PORTER, of St. Louis, delivered his address. One of the chief results of a regular attendance upon the sessions of any medical association, he said, is an extension of personal acquaintance.

It has been said that its success is inimical to the interests of the different State societies and the American Medical Association. This is in no sense true. The aim is to refer all complaints back to such societies. There is probably no large society in the land the members of which more uniformly respect and indorse the principles of the national association. The President congratulated the members of the Society that there had been no "ethical" wrangle among them, and that the guiding lines laid down by Percival eighty years ago are honored by the Society to-day.

The President suggested that the interests of the organization are now so important that no one of them can be neglected. It is impossible, owing to the extent of territory and rapid increase in membership, to have full knowledge of the whole work. The success of the Society depends upon individual effort. Men should be chosen in each congressional district, or in each local Society, who would use their personal influence for the advancement of the Society. The question of extension of territory must soon be considered. Originally including the three States, in a few years Cincinnati and St. Louis were added, which, with Chicago, Louisville, and other cities, gave the Association a large following. Delegates from beyond these confines are now sent, and men from other States ask to join the Society. What better structure, the President suggestively asked, could be built upon the solid foundation of the Tri-State Medical Society than the stately walls of a Western Medical Association; added territory and coming years bringing the certainty of added work at the sessions? In another year it will be necessary to extend the time to four days, or to divide into

sections during some of the sessions. The latter should only be considered when it becomes unavoidable.

DR. A. W. BRAYTON, of Indianapolis, reported a case of

MYELITIS DUE TO ARSENICAL POISONING,

interesting from the person having taken an ounce of arsenic, yet recovering without antidotal treatment. Paralysis followed, and mental impairment. The question was debated whether lead and arsenic cause paralysis of the extremities by affecting the spinal cord or the peripheral nerves.

DR. H. M. POST here read a paper on *Syphilitic Interstitial Keratitis*, which was well received.

DR. R. E. HAUGHTON, of Indiana, read a paper on

THE RELATIVE MERITS OF RESECTION AND AMPUTATION,

in which he discussed the subject at length. He argued that amputation is much the safer and better. The mortality, he said, even under the best methods of disinfection, is not likely to be less than after amputation, and as the mortality is now shown to be seven times more in amputation, when considering all varieties of resections, it must be regarded as a question of grave consideration to the surgeon, and especially to his patient, when about to be submitted to an ordeal which is so much the more dangerous than amputation is now known to be. In giving his conclusions, Dr. Haughton said that (1) no excision should be made in aged persons; (2) no excision should be made in very young persons; (3) no excision should be made if there is even a suspicion, much less evidence of the existence of phthisis or other constitutional diseases; (4) no excision should be made in acute disease or injury; (5) excision may be made in cases where the hand or foot and limb are to be saved, and which are of more than common value to the patient; hence the elbow- and knee-joints may be excised under proper considerations; (6) the shoulder- and hip-joints may be excised when amputation would cause greater mutilation and a greater loss than incision, and the patient has equally good chances for recovery after excision as after amputation, which is rarely possible; (7) excisions are not to be made in cases of malignant disease of the articular ends of bones or other parts of bones; (8) excisions should not be made for acute abscess in the knee-joint, and most likely not in any case of acute abscess; (9) excisions of joints generally are seven times more fatal than amputations under the same circumstances and in the same class of cases; (10) no surgeon is justified in subjecting his patient to excision, in view of all the facts made known, unless there are good and substantial reasons for assuming the greater risks by seven times over for his patient; and the extraneous circumstances which must overbalance in favor of an excision against it is a moral and surgical responsibility that is anything but conservative.

DR. BYRD exhibited *Hutchinson's Modification of Swift's Inhaler*, which he uses in administering the following anæsthetic, which he prefers:

Ethyle bromide,	. . .	1 ounce.
Chloroform,	. . .	2 ounces.
Alcohol,	. . .	4 "

WEDNESDAY, SEPTEMBER 19TH, SECOND DAY.

MORNING SESSION.

DR. N. FIELD, of Indiana, read a paper on the *Physiology of the Brain in Relation to Insanity*, which, after some discussion, was followed by a paper on *Insanity*, by DR. P. S. HAYES, of Chicago, and one by DR. C. G. COMEGYS, of Cincinnati, upon *Some Mental Problems in Questions of Medical Jurisprudence*. These

three papers were referred to the Committee on Publication, with the request that they be published.

DR. N. P. GODDY, of Indiana, then followed with a paper on *Heredity*, which elicited some discussion.

DR. CHENOWETH then read a paper giving the particulars of a case of *Peritonitis*, supposed to have been due to an induced abortion, which resulted in death. The uterus and its appendages were exhibited to the Society, eliciting much interest, and Dr. W. H. Wathen, of Louisville, Ky., was appointed to examine the same and report.

AFTERNOON SESSION.

DR. WATHEN, from the pathological indications furnished by the uterus exhibited by Dr. Chenoweth, decided that:

1. No pregnancy existed.
2. That no abortion had been attempted.
3. That there was one opening penetrating the uterus, and a second one going through the parenchyma only.
4. That the so-called corpus luteum was a cyst.
5. That the size of the uterus is normal.
6. That dysmenorrhœa might have induced sufficient trouble to cause death.

The business for the hour being the report of the Committee appointed to

REPORT UPON THE SUGGESTIONS CONTAINED IN THE PRESIDENT'S ADDRESS,

Dr. Porter, in the absence of any of the Vice-Presidents, called Dr. T. B. Harvey, of Indiana, to the Chair.

DR. BYRD, of Quincy, Ill., Chairman of the Committee, recommended that the Society be known as "The Medical Society of the Mississippi Valley," which was adopted. This scope includes the territory between the Rocky and Allegheny Mountains, and from Canada to the Gulf.

A recommendation to reduce the registration fee to \$2 was lost.

DR. RAUCH moved that all offices be filled by a committee consisting of one member elected by each State represented; this was seconded and carried.

It was also ordered that all local Societies be considered affiliated bodies, and entitled to representation.

A paper was then read by DR. E. BOCK, of St. Louis, on *Sponge-grafting*, which elicited much interest.

DR. WATHEN, of Louisville, read a paper on *Vesico-vaginal Fistula*.

DR. A. B. THRASHER, of Cincinnati, read a paper on *Naso-pharyngeal Catarrh*.

DR. H. H. MUDD, of St. Louis, gave a paper on *Stone in the Bladder*.

DR. LOUIS D. BROSSÉ, of Evansville, read a paper on *Tuberculosis*, as produced by the inhalation of sprayed sputum—illustrated by fifteen cases.

DR. L. E. STOCING, of Ill., reported a paper on the *Relation of the Condition of the Digestive Organs to Insanity*.

DR. H. N. CLARK, of Ill., presented a paper on *Amputation—Hot-water Applications*.

DR. W. H. WATHEN, of Louisville, Ky., exhibited a new *Sutural Needle for Use in Vesico-vaginal Fistula*, or similar operations, that presented some unusual points of interest.

EVENING SESSION.

DR. CHARLTON, of Seymour, Indiana, read a *Memoir of J. W. T. Gerrish*, of the same place, who was one of the first members of the Society, and who always took a prominent part in its proceedings.

The Committee on Nominations then reported the following persons as

OFFICERS FOR THE ENSUING YEAR :

President.—Dr. B. M. Griffith, of Springfield, Ill.
Vice-Presidents.—Dr. J. M. Matthew, of Louisville, Ky.; Dr. C. G. Comegys, of Cincinnati, Ohio; Dr. J. E. Link, of Terre Haute, Ind.

Secretary.—Dr. G. W. Burton, of Mitchell, Ind.

Treasurer.—Dr. F. M. Beard, of Vincennes, Ind.

Chairman of Committee of Arrangements.—Dr. F. L. Matthews, of Springfield, Ill.

Place of Next Meeting, Springfield, Ill.

Dr. G. C. SMYTHE, of Greencastle, Ind., then read a paper on the *Antipyretic Treatment of Typhoid Fever*, giving the details of a large number of cases so treated; the treatment resulting unusually successful. Several members discussed this mode of treatment, giving an almost unqualified voice in its favor.

Dr. D. S. REYNOLDS then read his paper, making some remarks on *Opacities of the Cornea*, noting that he had met with considerable success in relieving that condition, except when interstitial, by the operation of tattooing.

Dr. J. M. MATTHEW, of Louisville, presented a paper on the use of the *Ligature in Rectal Surgery*.

Dr. G. J. COOK, of Indianapolis, gave a paper on *Diseases of the Upper Part of the Rectum*.

THURSDAY, SEPTEMBER 20TH, THIRD DAY.

MORNING SESSION.

The session was opened by the reading of papers on *Tait's Operation*, by Dr. T. B. HARVEY, of Indianapolis, and Dr. W. A. BYRD, of Quincy, Ill., after which a paper on a case of *Prolapsus of the Left Ovary; Batley's Operation; Death*, was read by Dr. J. LUTZIE, of Richmond, Indiana.

Dr. J. F. HIBBERD, of Richmond, Ind., then presented a paper on *What is the Proper Management of a Child during the First Seventy Hours of Post-uterine Existence*, taking the ground that the dosing of infants with various substances and the strapping with tight bandages were wrong, and favoring as little interference as possible with nature. The opinions of the Society were in accord with the views of Dr. Hibberd.

AFTERNOON SESSION.

The afternoon session was held in the amusement hall of the Insane Asylum, by invitation of Dr. Fletcher, some seventy members being present.

Dr. G. V. WOOLEN, of Indianapolis, read a paper on the *Use of Chloroform in Parturition*, advocating the view that in many cases it was desirable to carry the patient to full anaesthesia. Considerable discussion followed this paper, many members preferring the use of ether to chloroform.

Dr. H. C. FAIRBROTHER, of East St. Louis, Ill., read a paper upon *Phlebitis*.

Dr. W. H. MYERS, of Fort Wayne, read a paper on *Tracheotomy*, holding that in cases of obstruction of the trachea, it is the duty of the surgeon to at once open it, and remove the foreign body.

The Society then visited the wards of the Asylum, and found them clean, well ordered, and containing 621 male and 477 female patients.

EVENING SESSION.

Dr. S. J. JONES, of Chicago, read a paper on the *Influence of Errors of Refraction and Defects of Accommodation of the Eye*, showing the danger of the indiscriminate selection of improper spectacles.

The PRESIDENT, Dr. W. PORTER, of St. Louis, then introduced the PRESIDENT-ELECT, Dr. B. M. GRIFFITH, of Springfield, Ill., who assured the Society of a hearty welcome and ample accommodations at Springfield, in

September, 1884, at which time and place the next meeting of the Society is to be held.

The Society then adjourned.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting September 19, 1883.

THE PRESIDENT, WM. M. WELCH, M.D., IN THE CHAIR.

Dr. WM. R. D. BLACKWOOD reported

AN INTERESTING CASE OF FEMORAL HERNIA IN AN AGED PATIENT; STRANGULATION; OPERATION, WITH CURE.

Mr. B., aged seventy-three, was taken ill with supposed cholera morbus on August 11, 1883, but from the suppression of alvine dejections shortly after the seizure, and the rapid change of the vomited matter to a stercoraceous fluid by the time his family physician—Dr. John Ivison—saw him, the diagnosis of the family was set aside for one of more grave nature. The gastric distress was very great, the desire to vomit urgent, and the act occurred at short intervals.

The case was believed to be one of obstruction, with possible invagination of the bowel, and efforts were made toward overcoming the difficulty and obtaining an operation in a normal direction, but without success. The question of strangulation by hernia was not at first accepted, because, although there existed an evident swelling at Poupart's ligament, the size of it was so small as to be taken for an enlarged gland, the patient having had glandular enlargement previously. There was no local pain, no tenderness, no tension, no dragging sensation at the site of the swelling, no tympanites—in short, the usual local signs of strangulated hernia were absent. The little tumor was also movable to such an extent as to easily deceive one, even when closely examined. Dr. Blackwood saw the case in consultation; as the patient was rapidly sinking from exhaustion, it was decided to make an exploratory incision and determine the nature of the enlargement. After cutting down to the sac the mass was found to be an entero-epiplocele. The sac contained very little serum, and considering the fact that strangulation had doubtless existed for at least thirty-six hours, the bowel, though highly congested, was in good condition. The gut was tightly nipped at the crural ring and was nearly empty, which accounted for the small size of the tumor. The hernia was internal to the femoral vessels, but closely adherent to them. It was reduced with some difficulty and pushed far up to clear the deep thrust of the needle in closing the wound. The stitches, four in number, were deeply taken and the ring obliterated as nearly as possible. He reacted well, and in an hour and a half passed an alvine dejection without pain or difficulty. In a week the old gentleman was able to walk his room with comfort.

The diagnosis of femoral hernia is, at times, not easy, being, as here, liable to be confounded with enlarged glands, or localized varix of the saphena. There was no impulse on coughing, no effort at reduction affected it, and, excepting only the very small tumor, all the local signs of strangulated gut were absent. The advanced age of the patient was against him, and his depressed vital power was a bad factor. The result shows the value of exploratory operation under the circumstances, and Dr. Blackwood believes that the attendant is unfaithful to his patient if he does not insist upon it in every suspicious case. The wound is of little account—it does not enhance the danger which is already imminent, and it may, as here, save a valuable life.

Dr. BENJAMIN LEE presented a specimen of

VERMIFORM MUCOUS DISCHARGE FROM THE RECTUM, the interest of which lies in the close resemblance it

bears to a tape-worm, and it was sent to him under the impression that it was a portion of a tape-worm partly dissolved by medicine.

DR. CHAS. M. SELTZER exhibited a

SPECIMEN OF ANEURISM OF THE ASCENDING POSTERIOR PART OF THE AORTA.

The patient from whom it was obtained was aged 35, and was admitted to the Eastern Penitentiary in September, 1882. Sixteen years of his life were spent in various prisons under different sentences.

His medical history dates back sixteen months ago, when he complained of pain between the shoulders, but he continued in comparatively good health until six months ago, when he began to complain of diffuse intercostal pains in both sides and pain in the epigastrium; also poor appetite, nausea, and indigestion; anæmia and general debility. Upon careful examination, no organic disease was discovered. The heart was rather weak, but otherwise normal. Thoracic percussion was normal, except slightly increased dulness under upper part of the sternum. Pulse feeble, but otherwise normal. There was no syphilitic history, no œdema, no palpitation of the heart or præcordial pains, and no interscapular pain during the past year. No bulging of the chest-walls, either anteriorly or posteriorly. No discoverable aneurismal bruit. In fact, there was nothing to indicate any organic disease. The scæe was examined by six reputable physicians, and all of them arrived at the same negative conclusion. The patient's physical condition steadily grew worse, and he was given the liberty of a large yard, excused from work, and allowed a plentiful nutritious diet, general tonics, and anodynes for the neuralgia. Under this treatment he seemed to improve, but the neuralgia and insomnia continued.

On August 28, 1883, while sitting in the yard, he suddenly grew very pale, complained of faintness, and was caught while in the act of falling to the ground. He was carried to the hospital department and given stimulants. The physician arrived in a few minutes, and found him dying.

At a post-mortem examination, a large tumor, found just above the heart, proved to be an aneurism of the posterior ascending portion of the aorta. The sac contained one and a half pints of freshly clotted blood, unorganized, and its posterior wall was formed from three dorsal vertebræ, the bodies of which were very much eroded. There was also some erosion of the corresponding ribs, and a slight bulging of the sac between them. The heart was very small, but free from disease. No other organic trouble observed.

A careful review of the case suggests the following thoughts: 1. That the disease was one of long standing, and that on account of the enforced quiet life of the subject, no inconvenience was experienced until erosion of the vertebræ was so extensive as to cause neuralgia of the adjacent nerves, and slight interscapular pain of but short duration. 2. That the case was rendered still more obscure by the facts that the opening into the sac was large, and that considerable portion of the sac-wall was made up of bone—both of which tend to destroy the possibility of there being a diagnostic aneurismal bruit. 3. That if there had been much interscapular pain, due to the erosion of the vertebræ, and it had been treated by introducing a seton or issue in its vicinity, as has been lately recommended (Thomas Hayden, Quain's *Med. Dict.*), there would have been considerable danger of puncturing that portion of the sac protruding between the ribs. 4. That there can be a very large thoracic aortic aneurism without any bulging of the chest-walls, and that it may erode much of the bodies of the vertebræ without causing spinal curvature. 5. That as there was no

hemorrhage into the thoracic cavity or canal of the spinal cord, death must have been due to pressure on some of the cardiac nerves or ganglia, and consequent collapse from heart-failure.

CORRESPONDENCE.

CELSUS ON THE TREATMENT OF HYDROPHOBIA.

"*Dos est magna Parentium virtus.*"

To the Editor of THE MEDICAL NEWS.

SIR: The virtue of our ancestors is a grand inheritance, and we must treasure their reputation. The humanity and devotion of our predecessors in our noble profession are what we have a right to feel proud of, and anything that calls them in question, even if inadvertently, may well arouse a feeling almost of resentment.

In a recent article in the *Philadelphia Medical Times*, headed "Remarks on Hydrophobia," I find the following statement made in regard to the treatment recommended by Celsus for hydrophobia: "Celsus advised throwing the victim of hydrophobia unexpectedly into a pond, where, if he could not swim, he was allowed to sink, and, if he could, he was held under until he was full of water." It would appear from this that Celsus, who is one of the glories of our profession, whom very great men have styled *admirabilis in omnibus, medicorum deus*, the Cicero of medicine, was very deficient in ethics. I wish, therefore, to offer a translation in full of the treatment he gives for hydrophobia, in defence of one so distinguished:

"The bite of a mad dog, when no remedies have been used, causes ordinarily a fear of water, called by the Greeks hydrophobia. This is one of the most frightful accidents, wherein the patient is tormented by thirst and by fear of water. When the disease has gone this far, there is little hope left. The only remedy that we can try is to throw the patient unexpectedly into a pond, to let him sink to the bottom several times if he does not know how to swim, that he may drink, and then to bring him up: if he swims, he is to be pushed under at different times, and forced to drink, whether he wishes or not; in this way, we succeed in driving away thirst and the fear of water. This method is not without danger, for if the patient has a bad constitution, the cold water may give him convulsions that will kill him. To prevent this, it is right to put the patient in a bath of warm oil as soon as he is taken from the water."

In a report on the Duval prize, for the year 1854, Broca used the following language, which is so admirable as to require no additional comment:

"There is a false erudition that consists in citing at second-hand, on the faith of others, authors never read, and in copying bibliographical references that have been transmitted from one book to another, every time with some alteration, without any one ever taking the trouble to verify them.

"In this way, a writer succeeds in furnishing a text all sprinkled with citations, and gives himself at little cost a varnish of erudition and of polyglottism that fills the reader with admiration. Many reputations have been built upon such foundations. These reputations have been or will be merely momentary, because they are badly constructed. When any one acts in this way, he becomes, without wishing it, the falsifier of science."

Nescire quid anteaquam natus sis acciderit id est semper esse puerum, Cicero tells us very truly. The very father of medicine, as we now call him, twenty-

two centuries ago wrote on *Ancient Medicine*: he tells us that "numerous and excellent discoveries have been made in the long course of ages, and that he who rejects and disdains the past deceives himself and deceives others." It is most praiseworthy to search into the teachings of the great physicians of past ages, and to cite their doctrines and their methods, but let it be done with a strict regard to correctness, and, it may be added, with the respect and the reverence that are owing to our honored *confrères*, or rather forefathers.

LOUIS W. ATLEE, M.D.

AN IMPROVED ATTACHMENT FOR THE HEAD-MIRROR.

To the Editor of THE MEDICAL NEWS.

SIR: The issue of THE MEDICAL NEWS of a few weeks ago contained a description of an attachment for the head-mirror, consisting in a continuous steel band, which clasps the head, extending from forehead to occiput.

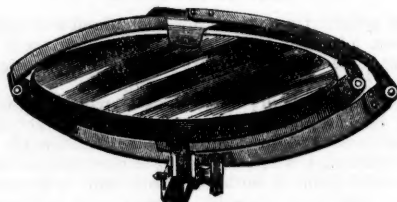
The advantages of any such contrivance over the miserable rubber bands in such general use are manifest; therefore I desire to call attention to an invention of Mr. Ivan Fox, optician, of this city, which I have been using for the past fifteen months, which far surpasses every other device for the purpose, and seems to leave nothing to be desired in the way of perfection.

Two bands of steel, three-quarters of an inch wide by three inches in length, rest horizontally, one on the



forehead, and the other on the occiput, and these pieces are connected by a band of similar width passing over the vertex. To the piece on the forehead the head-mirror is attached by a double ball-and-socket joint, which is kept tight or looser by a binding-screw. This allows free play to the mirror. The vertical band is made of four separate pieces, joined by three delicate hinges on the under side. These hinges are placed at such intervals that when the mirror is not in use, the whole attachment wraps compactly around the glass affording complete protection in carrying.

By a slight turn the horizontal forehead piece is brought flat against the back of the mirror, when the first piece of the vertical band reaches to the rim of the glass, where a hinge allows the second longer



piece to lap over the reflecting surface, on the opposite side of which the second hinge drops the third piece across the back, and this is hinged again to the last piece which falls on the face, and the glass is now completely protected by the horizontal occipital band lying at right angles to the others across the centre. The whole thus folded will slip into any pocket in which the mirror alone could be easily carried.

When opened for use, the ends are five inches apart; they are then sprung a little further out, and laid on the head. It then takes a firm grasp, and gives solid support to the mirror.

Contrasted with a rubber-band and buckle encircling the head, the advantages may be claimed, that of *protection* of the mirror from injury when laid aside; that it is *quickly* and easily applied; that it is *neat*, never disordering the hair by any number of adjustments, and this is one of the most important points; and that having a firm basis of support, it gives perfect *precision* in reaching and keeping in view any objective point. Respectfully yours,

HOWARD A. KELLY, M.D.

323 SOUTH SEVENTEENTH STREET,
PHILADELPHIA.

NEWS ITEMS.

YELLOW FEVER IN HAVANA.—There were nine cases of death from yellow fever in Havana last week, and twelve the week before.

YELLOW FEVER AT VERA CRUZ.—There were thirteen deaths from yellow fever at Vera Cruz for the week ending September 13th.

AMERICAN ACADEMY OF MEDICINE.—The American Academy of Medicine will meet at the New York Academy of Medicine, on Tuesday, October 9 (three o'clock), and Wednesday, October 10. The Address by Dr. H. O. Marcy, of Boston, Mass., President, will be on "The Recent Advances of Sanitary Science; the Relations of Micro-organisms to Disease." The following papers have been promised for the general meetings: Dr. L. S. Pilcher, of Brooklyn, N. Y., on "The Relations of Medical Journalism to Higher Medical Education in America." Dr. Traill Green, of Easton, Pa., on "The Imperfection of Technical Studies as a Means of Mental Culture." Dr. Benjamin Lee, of Philadelphia, on "The Value of an Acquaintance with Botany as a Preliminary to the Study of Medicine." Dr. Charles McIntire, of Easton, Pa., "Is it Fair? The Study of the Comparative Political Position of the Medical Profession in the United States." Dr. A. D. Rockwell, of New York, on "The Exact Value of the Electrolytic Method." Dr. J.

Cheston Morris, of Philadelphia, "The Milk Supply in Large Cities." Dr. Charles E. Cadwalader, of Philadelphia, "Considerations upon the Public Provisions for the Care of the Indigent Insane." Dr. A. D. Rockwell, of New York, "The late Dr. George M. Beard—a Sketch." Report of the Committee on Laws of Medical Practice in the United States and Canada.

THE MEETING OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.—Among those who will present papers at the next meeting of this Association, to be held at Detroit, on November 13th, are Surgeon Sternberg, U. S. A., and Surgeon Woodhull, U. S. A., on *Malaria*. Surgeon Smith, U. S. A., and Dr. Solomon of the Agricultural Department, on *Texas Cattle Disease*. Rudolph Hering, C. E., and Commissioner Raymond, of Md., on *House Drainage and Sewerage*. Prof. Sargent and Prof. Watson, on *Physical Exercises for Schools*, and Prof. A. R. Leeds and Dr. Wm. R. Newton, on *Food Adulterations*.

NEW MEDICAL JOURNAL.—The first number of *The Texas Courier-Record of Medicine*, edited by Drs. F. E. DANIEL and E. L. STROUD, Fort Worth, Texas, is lately received. It will be published monthly.

THE FOOT AND MOUTH DISEASE IN GREAT BRITAIN.—The latest reports state that this disease is spreading with remarkable rapidity throughout the counties of Derby, Lancashire, Suffolk, and Denbighshire.

In the twenty-five weeks ending September 8th, there were, according to the weekly returns in the *London Gazette*, 5600 fresh outbreaks reported, and 145,218 animals attacked.

THE KOCH MISSION.—DR. KOCH arrived in Egypt on August 23d, and went immediately to the Greek Hospital to make post-mortem examinations of persons dead of cholera.

BIOLOGICAL LABORATORIES: THEIR ORGANIZATION AND VALUE.—PROF. E. RAY LANKESTER, in his Address on Biology, delivered before the British Association for the Advancement of Science, on September 21st, advocated the endowment of research, especially in biology, urging that in the past it had produced discoveries of the greatest service to humanity, and that it was retarded in England by the want of means to prosecute it. In the following extract he compares England and Germany in the endowment of research, and gives an interesting sketch of the basis of organization of the German laboratories.

The knowledge of the growth of the chick from the egg and of other organisms from similarly constituted beginnings has been slowly and continuously gained by prodigious labor, extending over generation after generation of students who have occupied the laboratories and lived on the stipends provided by the governments of European States—not English, but chiefly German. It is this history of the development of the individual animal and plant from a simple homogeneous beginning to a complex heterogeneous adult which has furnished a starting-point for the wide-reaching doctrine of evolution. It is this knowledge, coupled with the knowledge of the myriad details of structure of all kinds of animals and plants which the faithful occupants of laboratories and the guardians of biological collections have in the past one hundred years laboriously searched out and recorded—it is this which enabled Darwin to propound, to test, and to firmly establish his theory of the origin of species by natural selection, and finally to bring the origin, development, and progress of man also into the area of physical science.

It may be laid down as a general proposition that scientific discovery has only been made by one of two

classes of men, namely: 1. Those whose time could be devoted to it in virtue of their possessing inherited fortunes; (2) Those whose time could be devoted to it in virtue of their possessing a stipend or endowment especially assigned to them for that purpose. Those who wish to defend the present neglect of the Government, and of public institutions, to provide means for the carrying on of scientific research in this country, are accustomed to declare as a justification for this neglect that we do very well without such provision, inasmuch as the cultivation of science here flourishes in the hands of those who are in a position of pecuniary independence. The reply to this is obvious. If those few of our countrymen who, by accident, are placed in an independent position, show such ability in the prosecution of scientific research, how much more would be effected in the same direction were the machinery provided to enable those also who are not accidentally favored by fortune, to enter upon the same kind of work?

It is altogether a mistake to suppose that the existence among us of a few very eminent men is any evidence that we are contributing largely to the hard work of careful study and observation, which really forms the material upon which the conclusions of eminent discoverers are based. In every department of biological knowledge the hard work of investigation is being carried on by the well-trained army of German observers. Whether you ask the zoölogist, the botanist, the physiologist, or the anthropologist, you will get the same answer. It is to German sources that he looks for new information; it is in German workshops that discoveries, each small in itself, but gradually leading up to great conclusions, are daily being made. To a very large extent the business of those who are occupied with teaching or applying biological science, in this country, consists in making known what has been done in German laboratories. Our English students flock to Germany to learn the methods of scientific research; and to such a state of weakness is English science reduced for want of proper nurture and support, that even on some of the rare occasions when a capable investigator of biological problems has been required for the public service, it has been necessary to obtain the assistance of a foreigner, trained in the laboratories of Germany.

In the German Empire, with a population of 45,000,000, there are 21 universities. These universities are very different from anything which goes by the name in this country. Among its other arrangements devoted to the study and teaching of all branches of learning and science, each university has five institutes or establishments devoted to the prosecution of researches in biological science. These are respectively the physiological, the zoölogical, the anatomical, the pathological, and the botanical. In one of these universities of average size each of the institutes named consists of a spacious building containing many rooms fitted as workshops, provided with instruments, a museum, and, in the last instance, with an experimental garden. All this is provided and maintained by the State.

It is the business of the professor, in conjunction with his assistants and the advanced students, who are admitted to work in the laboratories free of charge, to carry on investigations, to create new knowledge in the several domains of physiology, zoölogy, anatomy, pathology, and botany. It is for this that the professor receives his stipend, and it is on his success in this field of labor that his promotion to a more important or better paid post in another university depends. In addition to, and irrespective of, this part of his duties, each professor is charged with the delivery of courses of lectures and of elementary instruction to the general

students of the university, and for this he is allowed to charge a certain fee to each student, which he receives himself. The total of such fees may, in the case of a largely attended university and a popular subject, form a very important addition to the professorial income; but it is to be distinctly understood that such payment by fees is only an addition to the professor's income, quite independent of his stipend and of his regular occupation in the laboratory; it is paid from a separate source, and for a separate object.

There are thus in the German Empire more than one hundred such institutes devoted to the prosecution of biological discovery, carried on at an annual cost to the State of about £80,000, equal to about £160,000 in England, providing posts of graduated value for three hundred investigators, some of small value—sufficient to carry the young student through the earlier portion of his career, while he is being trained and acting as the assistant of more experienced men—others forming the sufficient but not too valuable prizes which are the reward of continuous and successful labor.

In addition to these university institutes, there are, in Germany, such special laboratories of research, with duly salaried staff of investigators, as the Imperial Sanitary Institute of Berlin, and the large museums of Berlin, Bremen, and other large towns, corresponding to our own British Museum of Natural History. There are, in addition to the universities in Germany, a number of other educational institutions, at least equal in number, which are known as polytechnic schools, technical colleges, and agricultural colleges. These furnish posts of emolument to a limited number of biological students, who give courses of instruction to their pupils, but they have not the same arrangements for research as the universities, and are closely similar to those colleges which have been founded of late years in the provincial towns of England, such as Bristol, Nottingham, and Leeds. The latter are sometimes quoted by sanguine persons, who are satisfied with the neglected condition of scientific training and research in this country, as really sufficient and adequate representatives of the German universities. As a matter of fact, the excellent English colleges in question do not present anything at all comparable to the arrangements of a German university, and are, in respect of the amount of money which is expended upon them, the number of their teaching staff and the efficiency of their laboratories, inferior not merely to the smallest German university, but inferior to many of the technical schools of that country.

A POLLUTED MINERAL SPRING.—*The British Medical Journal*, Aug. 18th, calls attention to a curious instance which has just been brought to light of the contamination with sewage-matter of a well that has long enjoyed a high reputation for its salutary virtues. When visiting in the south of Scotland lately, Dr. Crichton Browne, who, like all good Scotchmen, is a devoted admirer of Burns, made a pilgrimage to the Brow Well, a small village on the shores of the Solway Firth, where the great national poet, by the advice of his medical attendant, spent the last fortnight of his life in a despairing effort to repair his shattered health. Struck by the character of the water of the Brow Well, and by the accounts which he received of its beneficial effects in gastric, renal, and nervous affections, Dr. Crichton Browne determined to have it analyzed, and, for that purpose, sought the aid of Professor Dewar, at the Royal Institution. Professor Dewar's analysis shows the water to be of a unique description, and suggests that it may have valuable medicinal properties; but, at the same time, it reveals the fact that it is strongly tinctured with sewage. It seems probable that the drainage from the adjoining

cottages and pigsties, and from the heavily manured lands in the neighborhood, finds its way into the well. Professor Dewar thinks that it ought to be closed, in the interests of the community, until means can be taken to insure its purification, as large numbers of invalids resort to it at this season of the year, and drink freely of the water, of which the regulation quantity is six pints *per diem*.

HEALTH IN MICHIGAN.—Reports to the State Board of Health, for the week ending September 22, 1883, indicate that consumption, rheumatism, and inflammation of the brain have increased, that dysentery has considerably decreased, and that remittent fever, intermittent fever, erysipelas, cholera infantum, neuralgia, and pneumonia have decreased in area of prevalence.

Including reports by regular observers and others, during the week ending September 22, and since, diphtheria was reported present at twenty places, namely, Clam Lake, Coldwater, Detroit, East Saginaw, Forestville, Grand Rapids, Hastings, Ida, Lansing, Lowell, Manistee, Mt. Pleasant, Newberry, Pontiac, Reading, Sherman, Somerset, St. Joseph, South Arm, and Utica. Scarlet fever at seventeen places: Bingham, Cadillac, Charlotte, Detroit, East Saginaw, Edmore, Grand Rapids, Ithaca, Kalamazoo, Manistee, Mendon, Nashville, Northport, North Adams, Port Huron, Six Lakes, and Tyrone. Measles at four places: Charlevoix, Detroit, Ithaca, and Union City.

NOTES AND QUERIES.

CORRIGENDA.

Page 355, second column, eleventh line, for "once in 19 or 20 cases," read "once in 1900 cases." Thirty-ninth line, for "liq. plumb. subsulph.," read, "liq. ferri subsulph."

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM SEPTEMBER 24 TO OCTOBER 1, 1883.

TILTON, H. R., Major and Surgeon.—Assigned to duty as Post Surgeon at Fort Wayne, Michigan.—*Par. 4, S. O. 183, Department of the East*, September 28, 1883.

BRECHEMIN, LOUIS, Captain and Assistant Surgeon.—Relieved from duty at Fort Columbus, N. Y. H., and assigned to duty at Fort Wadsworth, N. Y.—*Par. 5, S. O. 183, Department of the East*, September 28, 1883.

DE LOFFRE, A. A., Captain and Assistant Surgeon.—Assigned to duty at Fort Niagara, N. Y.—*Par. 5, S. O. 182, Department of the East*, September 27, 1883.

HAVARD, VALERY, Captain and Assistant Surgeon.—Assigned to temporary duty at post of San Antonio, Texas.—*Par. 10, S. O. 120, Department of Texas*, September 21, 1883.

REED, WALTER, Captain and Assistant Surgeon.—Relieved from duty at Fort Omaha, Neb., and assigned to duty as Post Surgeon, Fort Sidney, Neb.—*Par. 5, S. O. 103, Department of the Platte*, September 22, 1883.

APPEL, A. H., First Lieutenant and Assistant Surgeon.—Assigned to temporary duty at Fort Warren, Mass.—*Par. 3, S. O. 181, Department of the East*, September 25, 1883.

CARTER, W. F., First Lieutenant and Assistant Surgeon.—Assigned to temporary duty at Washington Barracks, D. C.—*Par. 5, S. O. 182, Department of the East*, September 27, 1883.

RICHARD, CHARLES, First Lieutenant and Assistant Surgeon.—Relieved from further duty at Creedmoor, New York, to return to his proper station, Fort Adams, R. I.—*Par. 1, S. O. 180, Department of the East*, September 24, 1883.

RICHARD, CHARLES, First Lieutenant and Assistant Surgeon.—Granted leave of absence for two months, with permission to apply for extension of two months.—*Par. 1, S. O. 49, Military Division of the Atlantic*, September 25, 1883.

WAKEMAN, WILLIAM J., First Lieutenant and Assistant Surgeon.—Relieved from temporary duty at Fort Sidney, Neb., to rejoin his proper station at Fort D. A. Russell, Wyoming.—*Par. 5, S. O. 103, Department of the Platte*, September 22, 1883.